Diamond Digital

DV320

Wide Screen LCD Flat Panel Display

32" (81.3 cm) LCD Panel Size

User's Manual

Safety and Troubleshooting Information

Safety Precautions and Maintenance • FAQs • Troubleshooting • Regulatory Information• Other Related Information

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Safety precautions and maintenance

WARNING: Use of controls, adjustments or procedures other than those specified in this documentation may result in exposure to shock, electrical hazards and/or mechanical hazards.

Read and follow these instructions when connecting and using your computer monitor:

Operation:

- Keep the monitor out of direct sunlight and away from stoves or any other heat source.
- Remove any object that could fall into ventilation holes or prevent proper cooling of the monitor's electronics.
- Do not block the ventilation holes on the cabinet.
- When positioning the monitor, make sure the power plug and outlet are easily accessible.
- If turning off the monitor by detaching the power cable or DC power cord, wait for 6 seconds before attaching the power cable or DC power cord for normal operation.
- Please use approved power cord provided at all times. If your power cord is missing, please contact with your local service center.
- Do not subject the LCD monitor to severe vibration or high impact conditions during operation.
- Do not knock or drop the monitor during operation or transportation.

Maintenance:

- To protect your display from possible damage, do not put excessive pressure on the LCD panel. When moving your monitor, grasp the frame to lift; do not lift the monitor by placing your hand or fingers on the LCD panel.
- Unplug the monitor if you are not going to use it for an extensive period of time.
- Unplug the monitor if you need to clean it with a slightly damp cloth. The screen may be wiped with a dry cloth when the power is off. However, never use organic solvent, such as alcohol, or ammonia-based liquids to clean your monitor.

- To avoid the risk of shock or permanent damage to the set, do not expose the monitor to dust, rain, water, or excessive moisture environment.
- If your monitor gets wet, wipe it with dry cloth as soon as possible.
- If foreign substances or water gets in the monitor, please turn the power off immediately and disconnect the power cord. Then, remove the foreign substance or water, and send it to the maintenance center.
- Do not store or use the LCD monitor in locations exposed to heat, direct sunlight or extreme cold.
- In order to maintain the best performance of your monitor and maximise the lifetime, please use the monitor in a location that falls within the following temperature and humidity ranges.
    - Temperature: 5-40°C 41-104°F
    - Humidity: 20-80% RH

Service:

- The casing cover should be opened only by qualified service personnel.
- If there is any need for any document for repair or integration, please contact your local service centre.
- For transportation information, please refer to "Physical Specifications".
- Do not leave your monitor in a car/trunk under direct sunlight.

Consult a service technician if the monitor does not operate normally, or you are not sure what procedure to take after following the operating instructions given in this manual.

About This Manual

About This Guide • Notational Descriptions

About This Guide

This electronic user guide is intended for anyone who uses the DV320 LCD Display. It describes the features, setup, operation and other important information.

It includes the following sections:

- Safety and Troubleshooting Information provides tips and solutions for common problems as well as other related information you may need.
- About This Electronic User's Manual gives an overview of information included, along with notation icon descriptions and other documentation for your reference.
- Product Information gives an overview of the monitor's features as well as the technical specifications for this monitor.
- Installing Your Monitor describes the initial setup process and gives an overview of how to use the monitor.
- On-Screen Display provides information on adjusting the settings on your monitor.
- Remote Control provides information on adjusting the settings for your TV function.
- Customer Care and Warranty contains a list of Mitsubishi Service Centres as well as help desk phone numbers and information on the warranty applicable to your product.
- Download and Print Option transfers this entire manual to your hard drive for easy reference.

Notational Descriptions

The following subsections describe notational conventions used in this document.

Notes, Cautions and Warnings

Throughout this guide blocks of text may be accompanied by an icon and printed in bold or italic type. These blocks contain notes, cautions or warnings. They are used as follows:

NOTE: This icon indicates important information and tips that help you make better use of your computer system.

CAUTION: This icon indicates information that tells you how to avoid either potential damage to hardware or loss of data.

WARNING: This icon indicates the potential for bodily harm and tells you how to avoid the problem.

Some warnings may appear in alternate formats and may not be accompanied by an icon. In such cases, the specific presentation of the warning is mandated by the relevant regulatory authority.

Product Information

Product Features • Lead-free Product • Technical Specifications • Resolution & Preset Modes • Pixel Defect Policy • Automatic Power Saving • Physical Specification • Pin Assignment • Product Views

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Product Features

DV320

- **Advanced management features to maximise productivity**
  - Multiple displays can be daisy chained together to form one image
  - Monitor is network controllable for remote management
  - Input connectors: CVBS, S-video, SCART, YPbPr, and RF (TV input)
- **Better front of screen experience**
  - Motion adaptive deinterlacing for razor sharp images
  - 3D comb filter separates colour for a razor-sharp image
  - WXGA, wide format 1366 x 768 resolution for sharper display
  - Adaptive brightness intensifier technology
  - Ready to display SDTV, EDTV, and HDTV formats
- **Extra Features:**
  - Zoom function to enable tiled matrix application
  - Support height-bandwidth digital content protection decryption
  - Split screen for dual video/PC display
  - Picture in picture for public display

Lead-free Product

Mitsubishi Electric eliminated toxic substances like lead from its displays. Lead-free display helps protect your health and promotes environmentally sound recovery and disposal of waste from electrical and electronic equipment. Mitsubishi Electric complies with the European Community stringent RoHS Directive mandating restrictions on hazardous substances in electrical and electronic equipment. With Mitsubishi Electric, you can be confident that your display device does not harm the environment.

Technical Specifications*

LCD PANEL	
• Type	TFT LCD
• Screen size	31.51inch
• Pixel Pitch	0.17 x 0.511 mm
• LCD Panel type	1366 x 768 pixels R.G.B. vertical stripe Hard coating surface, anti-glare polarizer
• Effective viewing area	697.7 x 392.2 mm
• Display Colours	8 bit interface (16.7M colours)
PC SCANNING	
• Vertical refresh rate	56Hz-75Hz
• Horizontal frequency	30kHz-63kHz
PC VIDEO	
• Video dot rate	< 85 MHz
• Input impedance	
- Video	75 ohm
- Sync	2.2K ohm
• Input signal levels	0.7 Vpp
• Sync input signal	Separate sync

• Sync polarities	Positive and negative
• Input Frequency	WXGA Hsync 48 kHz, Vsync 60 Hz (N.I.) SVGA Hsync 38 kHz, Vsync 60 Hz (N.I.) VGA/DVI-D Hsync 31 kHz, Vsync 60 Hz (N.I.)
• Video interface	D-sub, S-Video, TV-RF, SCART composite, components video, and DVI

AUDIO

• Input level for PC/SVHS/SCART	500 mV nominal
• Loudspeaker	10W Stereo Audio (10W/channel RMS x2, 200Hz~10kHz, 8 ohm, 10% THD)

OPTICAL CHARACTERISTICS

• Contrast ratio	1200:1(with DCR on)
• Brightness	500 cd/m^2 (typ.)
• Peak contrast angle	6 o'clock
• White Chromaticity	x: 0.283 y: 0.297 (at 9300°K) x: 0.313 y: 0.329 (at 6500°K) x: 0.328 y: 0.344 (at 5700°K)
• Viewing Angle (C/R >5)	Upper ≥89° (typ.) Lower ≥89° (typ.) Left ≥89° (typ.) Right ≥89° (typ.)
• Response time	(Grey to Grey) 8ms(typ.) 12ms(max.)

sRGB

sRGB is a standard for ensuring correct exchange of colours between different devices (e.g. digital cameras, monitors, printers, scanners, etc.)

Using a standard unified colour space, sRGB will help represent pictures taken by an sRGB compatible device correctly on your sRGB enabled Mitsubishi monitors. In that way, the colours are calibrated and you can rely on the correctness of the colours shown on your screen.

Important with the use of sRGB is that the brightness and contrast of your monitor is fixed to a predefined setting as well as the colour gamut. Therefore it is important to select the sRGB setting in the monitor's OSD.

From PC mode, open the OSD by pressing the MENU button of your monitor.

Use the down button to select COLOUR SETTINGS and press MENU again.
Then move the down button to select NORMAL COLOUR and press MENU again.

** This data is subject to change without notice.*

Resolution & Preset Modes

• Recommended 1360 x 768 at 60Hz

10 factory preset modes:

Resolution	Mode	H. freq (kHz)	V. freq (Hz)
PC			
640x350	VGA-1	31.469	70.086
640x480	VGA VESA 60	31.469	59.940
640x480	VGA VESA 75	37.500	75.000
720x400	IBM VGA 3H	31.468	70.087
800x600	SVGA VESA 56	35.156	56.250
800x600	SVGA VESA 60	37.879	60.317
800x600	SVGA VESA 75	46.875	75.000
1024x768	XGA VESA 60	48.363	60.004
1024x768	XGA VESA 75	60.023	75.029
1280x768	CVT	47.700	60.000
1280x720	CVT	44.772	59.855
1360x768	VESA	47.700	60.000
Video			
720x480	480i	15.734	59.940

720x576	576i	15.625	50.000
720x480	480p	31.470	60.000
720x576	576p	31.250	50.000
1280x720	720p	37.500	50.000
1280x720	720p	45.000	60.000
1920x1080	1080i	28.125	50.000
1920x1080	1080i	33.750	60.000

Automatic Power Saving

If you have a VESA DPMS compliant display card or software installed in your PC, the monitor can automatically reduce its power consumption when not in use. If an input from a keyboard, mouse or other input device is detected, the monitor will 'wake up' automatically. The following table shows the power consumption and signaling of this automatic power saving feature:

Power Management Definition					
VESA Mode	Video	H-sync	V-sync	Power Used	LED colour
Active	On	Yes	Yes	100 W (typ.)	Blue
Sleep	Off	No	No	< 5 W	Amber
Switch Off	Off	-	-	< 3 W	Off

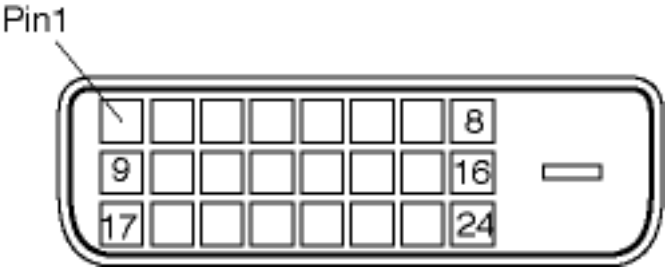
Physical Specifications

• Dimension (WxHxD) *	1014mm x 517mm x 244mm (incl. Pedestal, Speakers) 794mm x 490mm x 130mm (w/o Pedestal, Speakers)
• Weight	19.2 kg (incl. Pedestal, Speakers)
• Power supply	100 — 240 VAC, 60 — 50 Hz
• Power consumption	PC Mode: 100 W (typ.) TV Mode: 130 W (typ.)
• Temperature (operating)	5° C to 35° C
• Relative humidity	20% to 80%
• System MTBF	50K hrs (excluding CCFL 50Khrs)

** This data is subject to change without notice.*

Pin Assignment

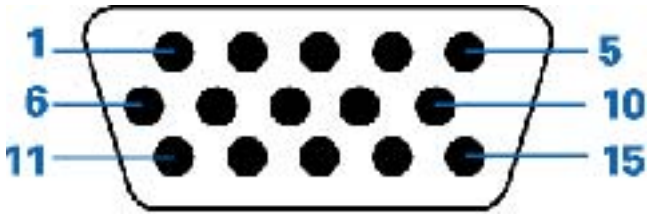
1. The digital only connector (DVI-D) contains 24 signal contacts organized in three rows of eight contacts. Signal pin assignments are listed in the following table:



Pin No.	Signal Assignment	Pin No.	Signal Assignment	Pin No.	Signal Assignment
1	T.M.D.S. Data2-	9	T.M.D.S. Data1-	17	T.M.D.S. Data0-
2	T.M.D.S. Data2+	10	T.M.D.S. Data1+	18	T.M.D.S. Data0+
3	T.M.D.S. Data2/4 Shield	11	T.M.D.S. Data1/3 Shield	19	T.M.D.S. Data0/5 Shield

4	No connect		12	No connect		20	No connect
5	No connect		13	No connect		21	No connect
6	DDC Clock		14	+5V Power		22	T.M.D.S. Clock Shield
7	DDC Data		15	Hot Plug Detect		23	T.M.D.S. Clock+
8	No connect		16	Ground (for +5V)		24	T.M.D.S. Clock-

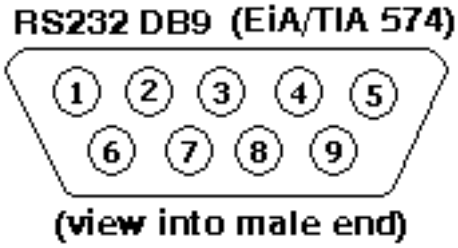
2. The 15-pin D-sub connector (male) of the signal cable:



Pin No.	Assignment	Pin No.	Assignment
1	Red video input	9	DDC +5V
2	Green video input	10	Cable detect
3	Blue video input	11	Identical output, connected to pin 10
4	Ground	12	Serial data line (SDA)
5	NC	13	H. Sync / H+V
6	Red video ground	14	V. Sync
7	Green video ground	15	Data clock line (SCL)
8	Blue video ground		

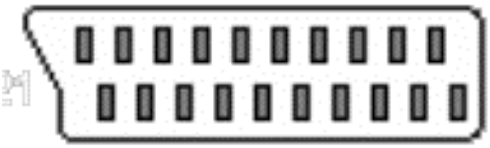
3. RS232 Connector

D-sub 9-pin male connector for communication with a PC.



Pin No.	RS-232 (EIA-232-A) Function
3	Transmit Data (TD) from DTE to DCE
2	Receive Data (RD) from DCE to DTE
7	Request to Send (RTS)
8	Clear to Send (CTS)
6	DCE Ready (DSR)
5	Signal Ground (SG)
1	Received Line Signal Detector (DCD)
4	DTE Ready (DTR)
9	Ring Indicator

4. SCART Connector



Pin No.	Signal	Pin No.
1	Audio right channel output (0.5 Vrms, < 1K ohms)	2
2	Audio right channel input (0.5 Vrms, > 10K ohms)	1
3	Audio left channel output (0.5 Vrms, < 1K ohms)	6

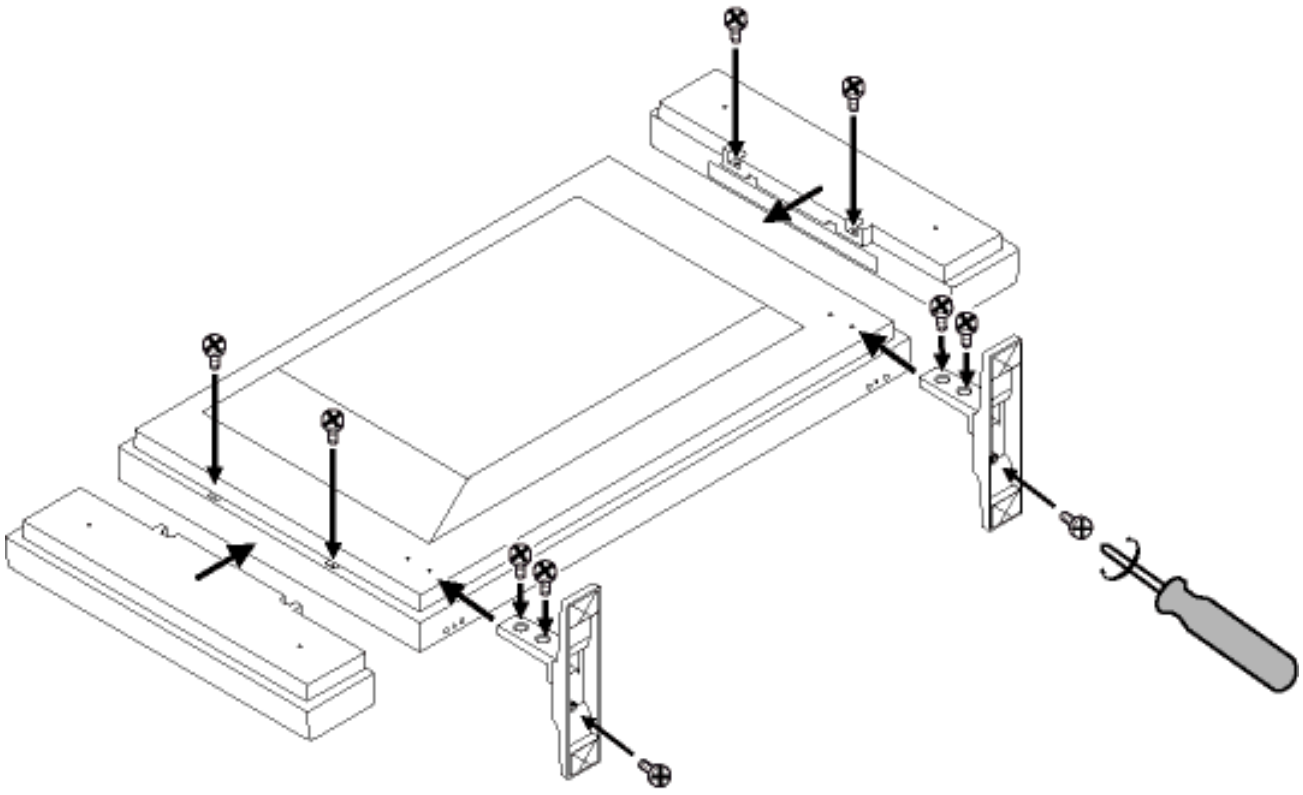
4	Audio ground	4
5	Blue signal ground	5
6	Audio left channel input (0.5 Vrms, > 10K ohms)	3
7	Blue signal I/O (0.7 Vp-p, 75 ohms)	7
8	Function switching I/O (L: < 2V, H: > 10V, 10K ohms)	8
9	Green signal ground	9
10	Intercommunication data line No. 1	10
11	Green signal I/O (0.7 Vp-p, 75 ohms)	11
12	Intercommunication data line No. 2	12
13	Red signal ground	13
14	Blanking signal ground	14
15	Red signal I/O (0.7 Vp-p, 75 ohms)	15
16	Blanking signal I/O (L: < 0.4V, H: >1.0V, 75 ohms)	16
17	Composite video signal ground	18
18	Blanking signal ground	17
19	Composite video signal output (1 Vp-p, 75 ohms, sync: negative)	20
20	Composite video signal input (1 Vp-p, 75 ohms, sync: negative)	19
21	Plug shield (common ground)	21

Installing your LCD Monitor/TV

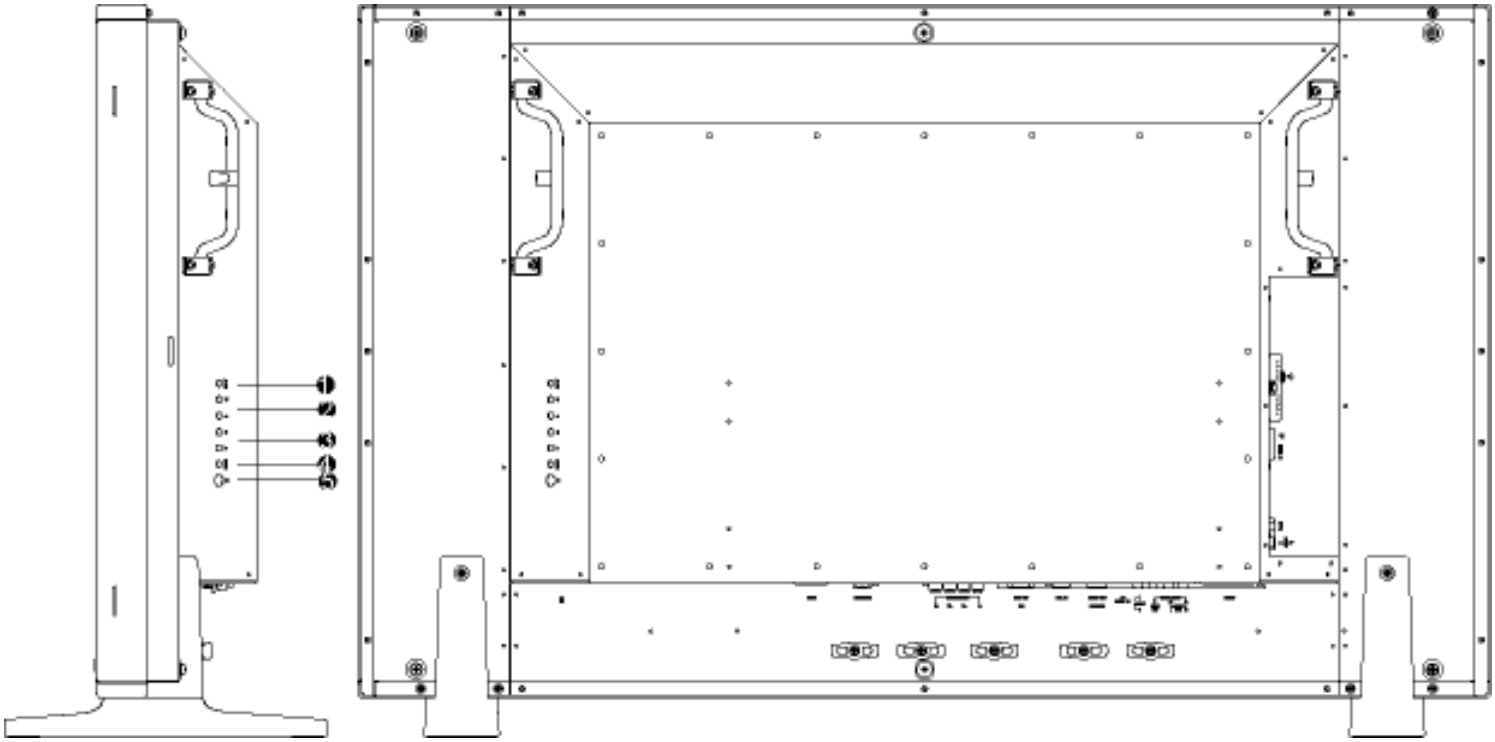
Product Description • Connecting to Your PC, TV antenna, DVD/VCR etc. • Getting Started
• Optimizing Performance

Product Description

Installing your LCD Monitor/TV

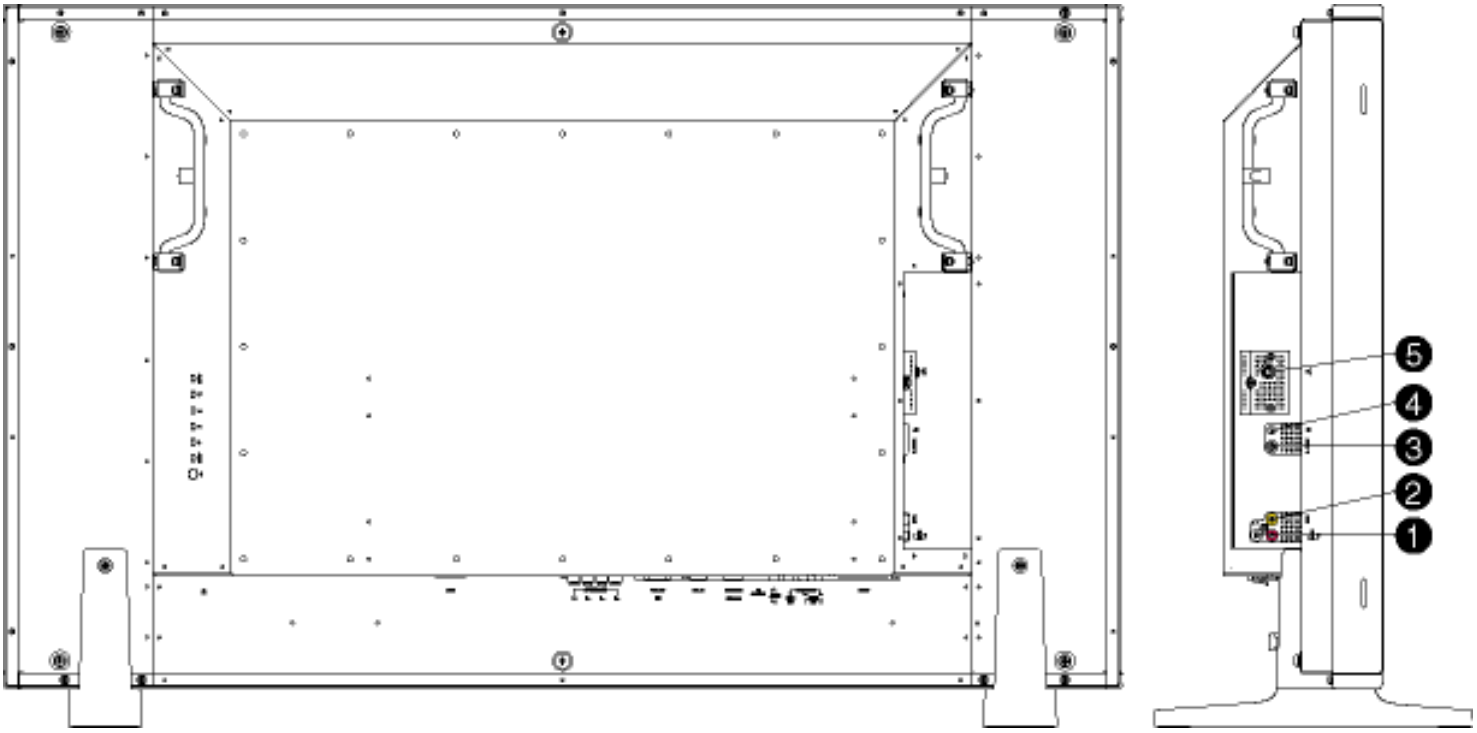


Side View (Left)



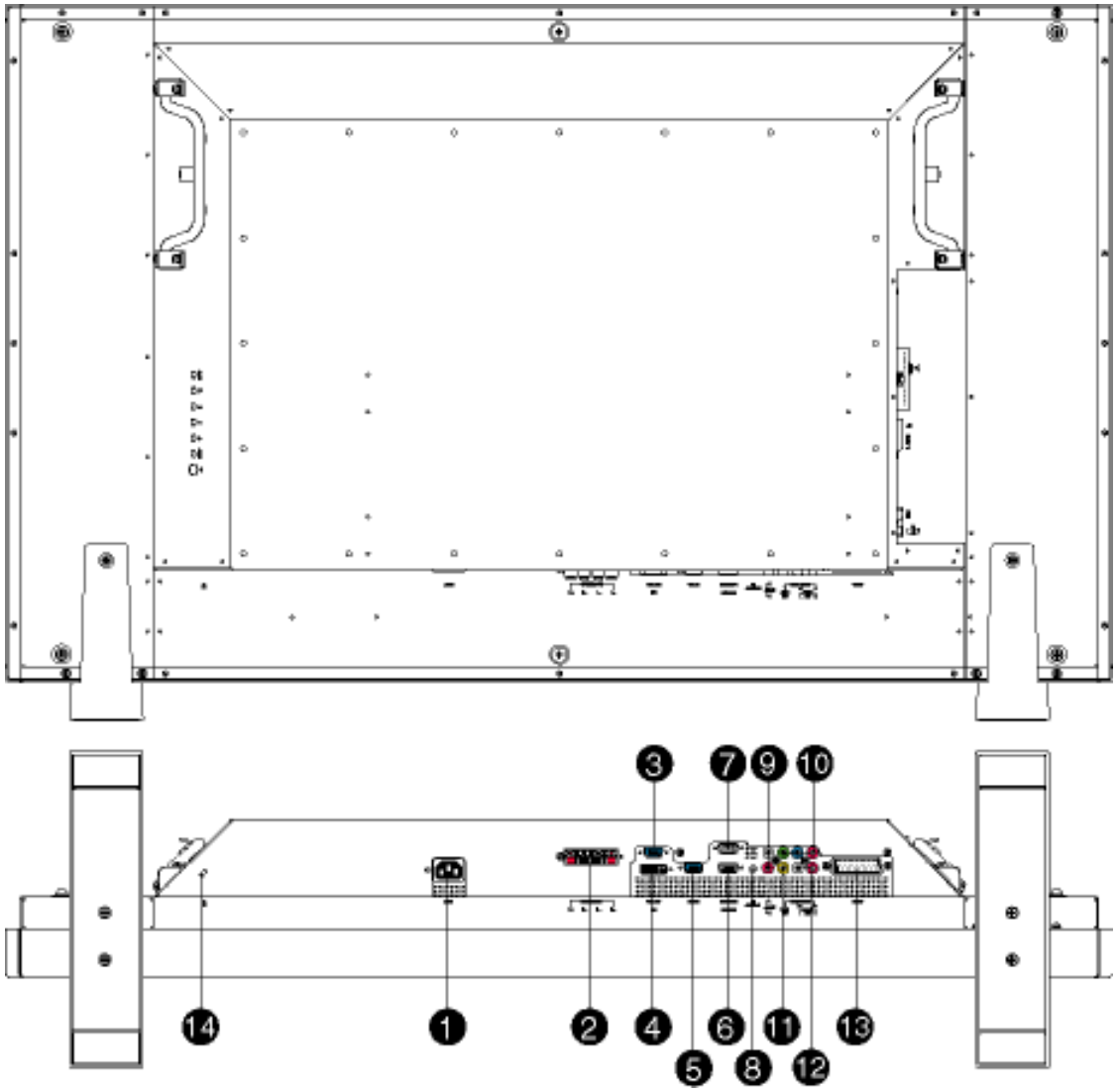
1	**INPUT**	Select input source
2	▼ ▲	Increase or decrease the channel number or move up or down to highlight functions in the OSD
3	◀ ▶	Increase or decrease the level of audio volume or move left or right to highlight the sub-menu in the selected OSD function
4	**MENU**	Open the OSD or confirm the selected function
5	⏻	DC power switch On/Off

Side View (Right)



1	Audio input for composite input	Audio (left and right) input for composite signal input.
2	Composite input	Composite (CVBS) signal input
3	S-Video input	S-Video signal input
4	Earphone output	Earphone output
5	TV tuner	TV tuner input (available in TV version only)

Rear View



1	AC in	AC power in
2	Speakers output	External speakers output
3	D-Sub output	PC analog D-Sub output
4	DVI-D input	PC digital input
5	D-Sub input	PC analog D-Sub input
6	RS232 input	RS232 network connection Input
7	RS232 output	RS232 network connection output for the use of loop through function
8	PC audio	PC stereo audio input

9	Audio input for component signal	Audio (left and right) input for component signal input
10	Component input	Component (YP_bP_r) signal input
11	Composite output	Composite (CVBS) output for the use of loop through function
12	Audio output for composite output	Audio (left and right) out put for composite signal out put.
13	External / EURO-AV	SCART connection (for the use of European model only)
14	Kensington lock	Kensington lock

Optimising Performance

- For best performance, ensure that your display settings are set to 1360x768, 60Hz.

Note: *You can check the current display settings by pressing the 'MENU' button once.*

On Screen Display

On Screen Display Control • Using Your Remote Control

On Screen Display Controls

An overall view of the On-Screen Display (OSD) structure is shown below. You can use it as a reference for further adjusting your Monitor/TV.

There are two different modes of OSD available for different models:

- PC Mode
- TV Mode

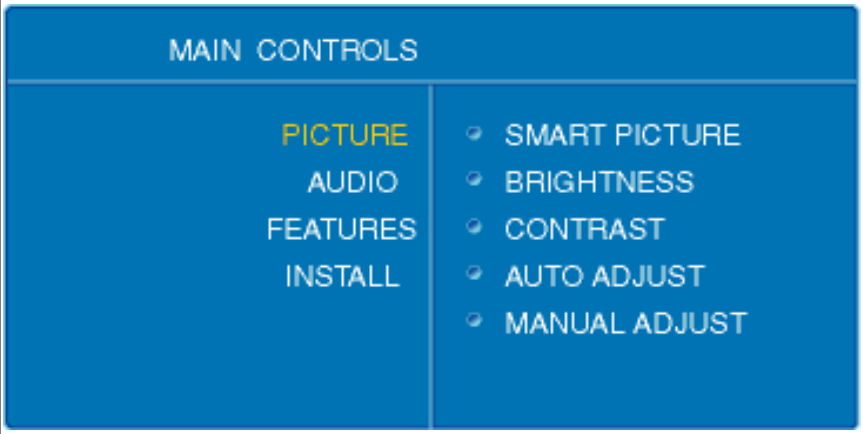
Main menu

There is a slight difference between PC mode and TV mode: Setup selection is available in TV mode only.

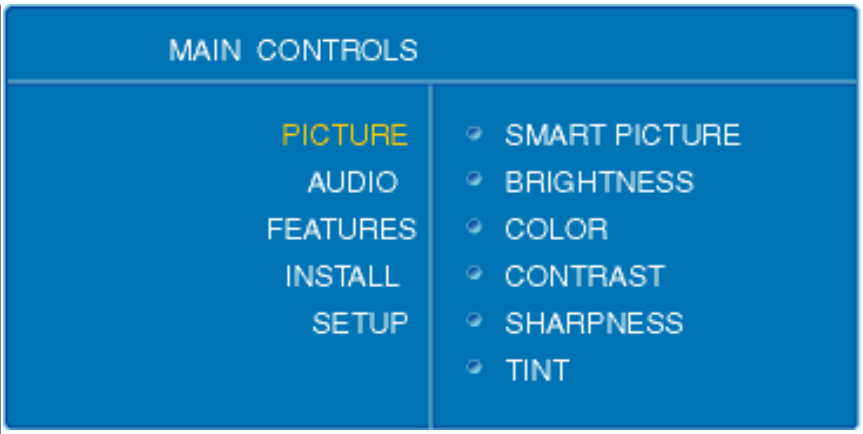
Sub-menus

Picture: press to enter sub-menu selections.

PC Mode



TV Mode



PC mode

Selection	How to use

Smart Picture	In PC mode
	• Users can press or to toggle between
	  ○ Normal
	  ○ Warm
	  ○ Cool
	• Press to enter the next sub-menu selection or OK to return to main menu.

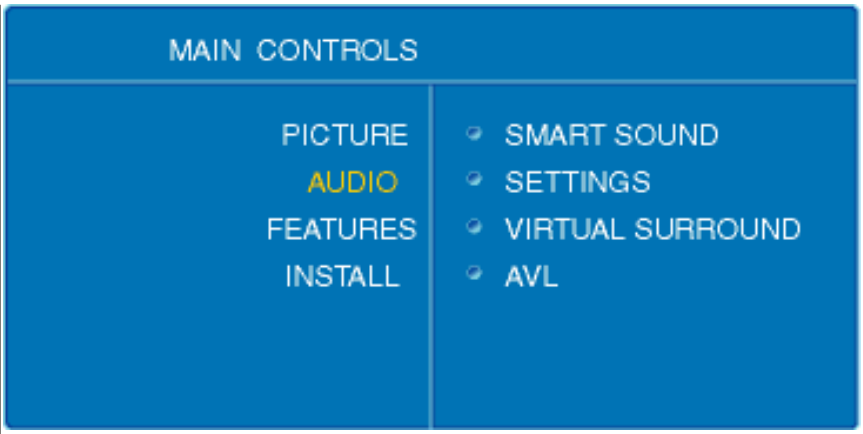
Brightness	Adjust image brightness. • Press or to adjust, • Press or to open adjacent sub menu selections, • Press OK to return to main menu.
Contrast	Adjust image sharpness. • Press or to adjust, • Press to open adjacent sub-menu selections, • Press OK to return to main menu.

Auto Adjust	Automatic fine tuning display geometry and time frequency parameter. • Press to start, • Store? Yes/No will appear. • Press or to toggle between Yes and No. • Press to confirm and return to sub-menu.
Manual Adjust	Adjust display geometry and time frequency parameters. • Phase: Press or to adjust, to confirm and return to sub-menu. • Clock: Phase: Press or to adjust, to confirm and return to sub-menu. • Horizontal: Phase: Press or to adjust, to confirm and return to sub-menu. • Vertical: Phase: Press or to adjust, to confirm and return to sub-menu.
TV mode	
Smart Picture	In TV mode • Users can press or to toggle between ○ Personal ○ Movies ○ Sports ○ Weak Signal ○ Multimedia ○ Night • Press to next enter sub-menu selection, or to return to main menu.
Brightness	Adjust image brightness. It is only adjustable when Smart Picture is in personal mode. • Press or to adjust, • Press or to open adjacent sub-menu selections, • Press to return to main menu.

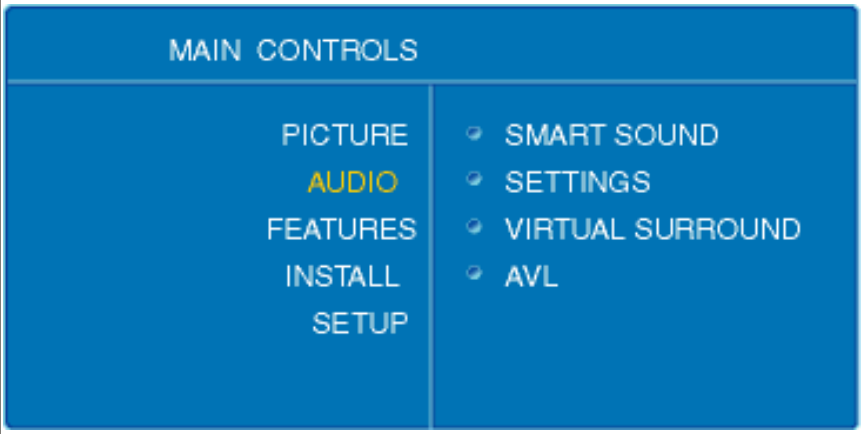
Contrast	Adjust image sharpness. It is only adjustable when Smart Picture is in personal mode. • Press or to adjust, • Press or to open adjacent sub-menu selections, • Press to return to main menu.
Colour	Adjust image color saturation. It is only adjustable when Smart Picture is in personal mode. • Press or to adjust, • Press or to open adjacent sub-menu selections, • Press to return to main menu.
Sharpness	Adjust image sharpness. It is adjustable only when Smart Picture is in personal mode. • Press or to adjust, • Press or to open adjacent sub-menu selections, • Press to return to main menu.
Tint	Adjust image hue level. • Press or to adjust, • Press or to open adjacent sub-menu selections, • Press to return to main menu.

Audio: press to enter sub-menu selections

PC Mode



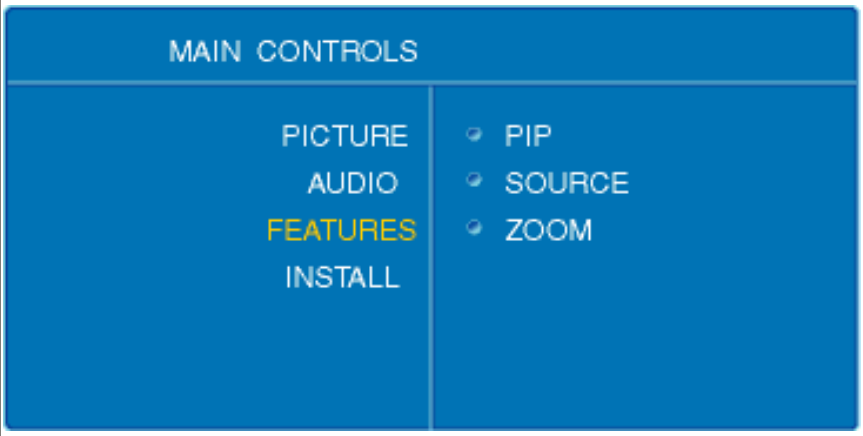
TV Mode



Smart Sound	Preset audio modes. • Users can press or to toggle between ○ Personal ○ News ○ Music ○ Theatre • Press to enter next sub-menu selections • or to return to main menu.
Settings	Adjust audio setting parameters. • Users can press or to toggle between ○ Treble ○ Bass ○ Balance • Press or to open adjacent sub-menu selections • or to return to main menu.

Virtual Surround Sound	Switch virtual surround effect on or off. • Users can press or to toggle between ○ On ○ Off • Press or to open adjacent sub-menu selections, to return to main menu.
AVL	Auto Volume Limit, adjust volume level automatically to prevent sudden peak load exceeds design limit. • Users can press or to toggle between ○ Yes ○ No • Press or to open adjacent sub-menu selections, to return to main menu.

Features: press to enter sub-menu selections.



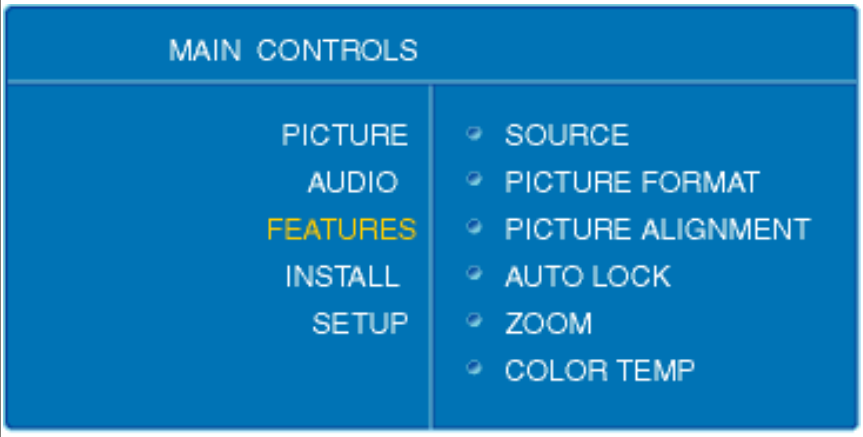
PC mode

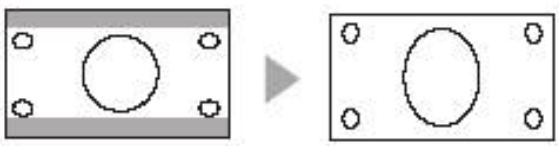
PIP	Picture in Picture size choices. • Press to enter PIP sub-menu, and press or to selection between ○ Size ○ Video ○ Audio ○ Display • Press to return from PIP sub-menu to sub-menu, or press or to return to main menu.

PIP Sub-menu	
Size	PIP window size adjustment. • Users can use or to toggle between ○ Small ○ Medium ○ Large ○ PBP ○ Off • Press or to return to upper level sub-menu, to enter next selection.
Video	Video source of the PIP window. • Users can use or to toggle between ○ TV ○ AV (CVBS) ○ S-video ○ EXT (Scart) • Press or to open adjacent sub-menu selections to return to upper level sub-menu.
Audio	Audio source of the PIP window. • Users can use or to toggle between ○ PC ○ PIP • Press or to open adjacent sub-menu selections, to return to upper level sub-menu.
Display	PIP window location selection. • Users can use or to toggle between ○ Icon1 (upper right corner of the screen) ○ Icon2 (lower right corner of the screen) ○ Icon3 (lower left corner of the screen) ○ Icon4 (upper left corner of the screen) • Press or to open adjacent sub-menu selections, to return to upper level sub-menu.

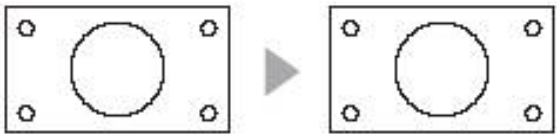
<table>
<tr><td>Source</td><td>Choices of video source for main screen.
Users can use or to toggle between
PC
DVI
HDCP
TV
AV (CVBS)
S-video
EXT (Euro connector, Scart)
HD (YPbPr)
Press or to open adjacent sub-menu selections, to return to upper level sub-menu.</td></tr>
<tr><td>Zoom</td><td>Choices for Zoom function.
Users can use to enter next level sub-menu and Zoom sub-menu.</td></tr>
<tr><td colspan="2">Zoom sub-menu</td></tr>
<tr><td>Zoom Type</td><td>Users can use or to toggle between
Off
4x4
3x3
2x2
1x5
Press to confirm and to return to upper level sub-menu.</td></tr>
<tr><td>Zoom ID</td><td>This selection is only available when one of zoom types is chosen.
When zoom type is off, this selection is unavailable.
Users can use or to toggle between IDs. For example, when 4x4 is chosen, the ID selection are<table><tr><td>A1</td><td>A2</td><td>A3</td><td>A3</td></tr><tr><td>B1</td><td>B2</td><td>B3</td><td>B4</td></tr><tr><td>C1</td><td>C2</td><td>C3</td><td>C4</td></tr><tr><td>D1</td><td>D2</td><td>D3</td><td>D4</td></tr></table>
Press to confirm and to return to Zoom Type and exit to upper level sub-menu.</td></tr>
</table>

TV mode



Source	Choices of video source for main screen. • Users can use or to toggle between each signal source, then press to confirm your select. ○ PC ○ DVI ○ HDCP ○ TV ○ AV (CVBS) ○ S-Video ○ Ext (Euro connector, Scart) ○ HD (YP_bP_r) • Press or to open adjacent sub-menu selections to return to upper level sub-menu.
Picture Format	Selections of image format. • Users can use or to toggle between ○ Automatic ○ 4:3 ○ Zoom 16:9  ○ Wide screen

- Super wide



- Press or to open adjacent sub-menu selections to return to upper level sub-menu.

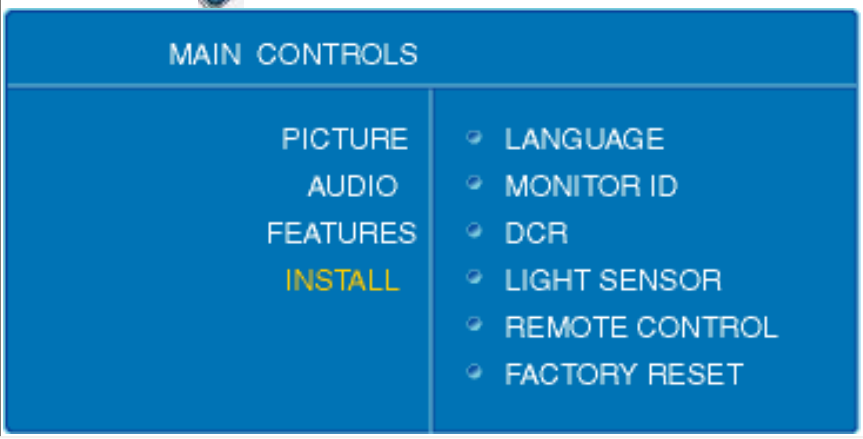
Auto Lock	Lock specific channels to prevent underage viewers watching unsuitable TV content. • Users can use to enter the next level sub-menu. • When you select this function for the first time, a sub-menu will appear and ask you to input access code.You can use the number buttons to input a four-digit access code.Then sub-menu will appear and ask you to input the same access code once more to confirm. • After the first time, each time you try to access this function, a sub-menu will appear to request for a access code. If the code is correct, you can start using this function. Note: Please remember that 0711 is a default access code. If you forget the access code you have set, or someone has changed your access code, you can always use 0711 to unlock.
Auto Lock sub-menu	
Lock Program	Lock selected channel from underage viewers. • Press to enter. • Use to block the current channel, to unlock this channel. • Use the number buttons to select the channel you wish to block or unlock. • Press to confirm and return to upper level sub-menu.

Change code	Change lock program access code. Users need to set a four digit access code to enable the Auto Lock function. • Use to enter code input mode • Use the number buttons to set a new four-digit code • Press to confirm and return to upper level sub menu.
Clear all	Clear all locked channels. • Press or to toggle between ○ On ○ Off • Press to confirm and clear all locked channel settings. Use to open adjacent upper level sub-menu selections.
Zoom	Choices for Zoom function. • User can use to enter next level sub-menu, and Zoom sub-menu.
Zoom sub-menu	
Zoom Type	• Users can use or to toggle between ○ Off ○ 4x4 ○ 3x3 ○ 2x2 ○ 1x5 • Press to confirm and to return to upper level sub-menu.
Zoom ID	This selection is only available when one of the zoom types is chosen. When zoom type is off, this selection is unavailable. • Users can use or to toggle between IDs.For example, when 4x4 is chosen, the ID selections are

A1	A2	A3	A3
B1	B2	B3	B4
C1	C2	C3	C4
D1	D2	D3	D4

	• Press OK to confirm, then to return to Zoom Type and exit to upper level sub-menu.

Install: press to enter sub-menu selections.



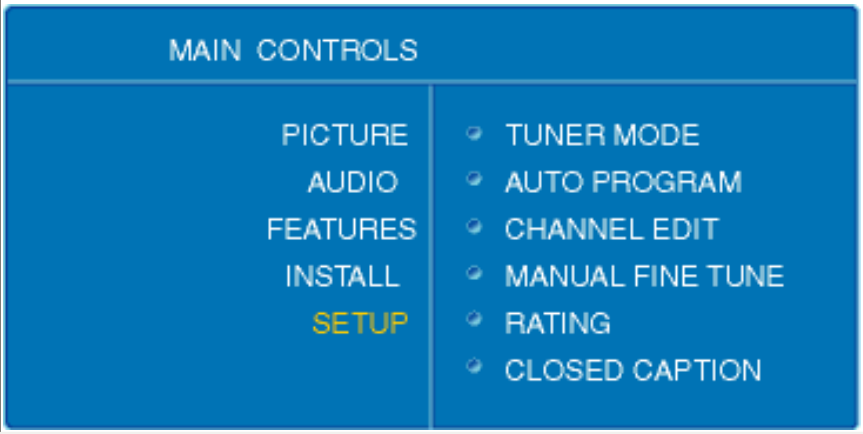
Language	Choices of languages in user interfaces. • Users can press or to toggle between ○ ENGLISH ○ ESPAÑOL ○ FRANÇAIS ○ DEUTSCH ○ ITALIANO ○ 中文 • Press to open adjacent sub-menu selections or OK to return to the main menu.
Monitor ID	Assigning a three digit monitor ID to the unit, so it can be identified when using RS232 to control from remote. • Use to enter, and or to select 1~9 numbers, then OK to confirm.
DCR	Dynamic Contrast Ratio, technology to boost display contrast ratio. • Users can use or to toggle between ○ On ○ Off • Press or to adjacent sub-menu selections.

Light Sensor	Turns the light sensor on or off for automatic brightness control.
	• Users can use or to toggle between
	  ○ On
	  ○ Off
	• Press or to open adjacent sub-menu selections.

Remote Control	Users need to turn off remote control function when they want to use RS232 protocol to control this unit from afar, so it will remote control commands not to conflict with RS232 commands.
	• Users can use or to toggle between
	  ○ On
	  ○ Off
	• Press or to open adjacent sub-menu selections.

Factory Reset	To reset all settings back to factory defaults.
	• Users can use or to toggle between
	  ○ No
	  ○ Yes
	• Press to confirm.

Setup:Setup sub-menu is available in TV modes only. Press to enter the sub-menu selections.
TV mode (North America model)



Tuner Mode	Choose of tuner signal inputs.
	• Users can press or to toggle between
	  ❍ Antenna
	  ❍ Cable
	  ❍ Auto
	• Then, press to open adjacent sub-menu selections or to return to the main menu.

Auto Program	Scan all existing channels from your tuner input. • Press to start. • Press or to open adjacent sub-menu selections, to return to the main menu.

Channel Edit	Choose to add or delete channels from available channels.
	• Press to enter Channel Edit sub-menu.
	• In Channel selection, use or to choose the channel that you wish to add or delete.
	• Then, press to next selection, use or to toggle between
	  ❍ Activate (add)
	  ❍ Skip (delete)
	• Repeat the above two steps to add or delete other channels,or press to confirm and return to upper level sub-menu.
	• Press or to adjacent sub-menu selections.

Manual Fine Tune	In case of weak signal situations, manually fine-tune channel signals to get the best display quality. • Users can use or to fine tune • Press or to adjacent sub-menu selections, to return to main menu.

Rating	TV broadcasters add rating signals in the broadcasted TV programs. Users can use this function to set up an automatic program rating and blocking mechanism to prevent underage viewers from watching unsuitable movies or TV programs. • Press to enter the Rating sub-menu. • Press or to open adjacent sub-menu selections.
Rating sub-menu	
Block Option	To enable or disable the TV or Movie block function. • Users can use or to toggle between ○ On ○ Off • Press or to return to upper level sub- menu , to open adjacent sub-menu selections.
Moving Rating	There are seven movie ratings. • Users can use to enter movie rating sub-menu, and use or to choose between ○ G: all ages admitted ○ PG: Parental guidance suggested ○ PG13: Parents strongly cautioned ○ R: Restricted ○ NC: No children under the age of 17 will be admitted ○ X: Adults only (More information will be seen at the end of this section) • In each rating selection, users can use or to toggle between ○ On ○ Off Note: If a lower level rating is blocked, then all the upper level ratings will also be blocked automatically. For example, if PG is blocked, then all the other ratings except G will be blocked. • Then, press to return to upper level sub- menu, or

	to adjacent sub-menu selections.
TV Rating	There are six TV ratings. • Users can use to enter the movie rating sub-menu, and use or to choose between: 1) Y: all children • Users can use or to toggle between ○ On ○ Off 2) Y7: Directed to older children • Users can use or to toggle between ○ Block ○ FV: fantasy violence or comic violence 3) G: General audience • Users can use or to toggle between ○ On ○ Off 4) PG: Parental guidance suggested • Users can use or to toggle between ○ Block ○ V: violence ○ S: sexual references ○ L: strong language ○ D: suggestive dialogue to block all programs in this rating or part of the programs with specific contents. 5) 14: Parents strongly cautioned. • Users can use or to toggle between ○ Block ○ V: violence

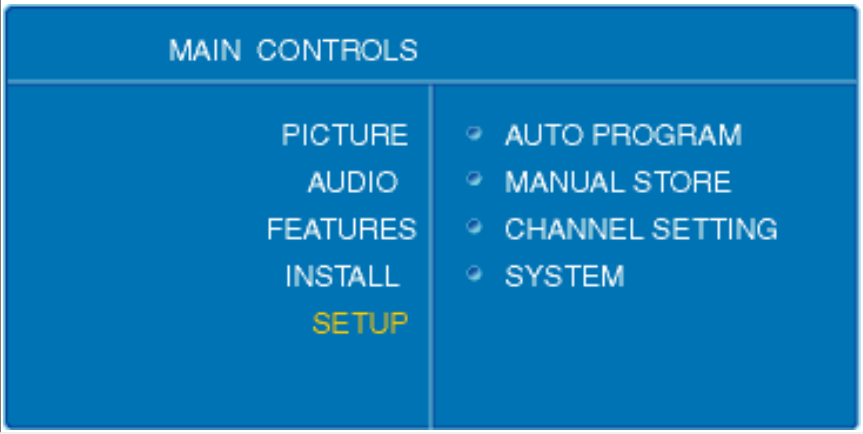
	○ S: sexual references ○ L: strong language ○ D: suggestive dialogue to block all programs in this rating or part of the programs with specific contents. 6) MA: Matured audience only. • Users can use or to toggle between ○ Block ○ V: violence ○ S: sexual references ○ L: strong language ○ D: suggestive dialogue to block all programs in this rating or part of the programs with specific contents. (More information will be seen at the end of this section) Note: If a lower level rating is blocked, then all higher level ratings will be also blocked automatically. For example, if Y7 is blocked, then all the other ratings except Y will be blocked. • Then, press to return to upper level sub- menu, or to open adjacent sub-menu selections.
Closed Caption	Closed captions are captions that are hidden in the video signal, invisible without a special decoder. It allows hearing impaired TV viewers to read ongoing program dialogues or audio effects. • Users can press to enter Closed Caption sub-menu. Press or to choose between ○ Caption Mode ○ CC Display • Press to return to main menu.
Closed Caption sub-menu	

Caption Mode	There are nine caption modes that can be be selected. • Users can use or to toggle between: ○ CC1 ○ CC2 ○ CC3 ○ CC4 ○ TXT1 ○ TXT2 ○ TXT3 ○ TXT4 ○ CC Mute • Then press to confirm and return to upper level sub-menu. Note: The difference between CC and TXT mode is: CC shows a few lines of dialogue only, but TXT (text) uses half or the entire page to display scrolling text information. CC1 ~CC4 are usually showing same contents in different languages. Text mode likewise.
CC Display	Users can use CC display to turn closed caption on/off, which was set previously. • Users can use or to toggle between ○ On ○ Off • Then press to confirm and return to upper level sub-menu.

About Movie Ratings

The movie rating system is set up by Motion Picture Association of America.The main reason is to prevent underage viewers from watching unsuitable movie footage. There are six rating levels, namely G, PG, PG-13, R, NC-17, and X.

TV mode (Europe, Asia Pacific models)



Auto Program	Scan all existing channels from your tuner input. • Press to start. • Press or to open adjacent sub-menu selections, to return to the main menu.
Manual Store	Select a frequency to use with a specific channel. • Use to enter the Manual Store sub-menu, and or to switch between selections. • Then press to confirm.
Channel Setting	Choose channel setting to edit channel, swap channel, edit name, and sort channel. • Use to enter Channel Setting sub-menu, and or to select between selections. • Then press to confirm.
System	Select different programs in TV mode. • Use to enter System sub-menu, and or to switch between selections. • Then press to confirm.

Manual Store sub-menu

System	• Users can press or to toggle between ❍ France: scans pan Europe and French TV systems ❍ Western Europe: scans pan Europe TV systems only. • Press or to open adjacent sub-menu selections to confirm and return to upper level sub-menu.
Manual Store	Select a frequency to use with a specific channel. • Use to enter, and use or to adjust frequency. • Then, press or to open adjacent sub-menu selections to confirm.
Program Number	Assign a channel number to the frequency chosen in the above function. • Ue to enter, and use or to select a number. • Press or to adjacent sub-menu selections, to confirm.
Fine Tune	Fine tune the channel frequency to get a better display quality. • Use to enter, and use or to adjust frequency. • Then, press or to adjacent sub-menu selections, to confirm.
Store	• Use to enter storing process. • A selection of Store? Yes/No will appear. • Press or to toggle between ❍ Yes ❍ No • Press to confirm and return to sub-menu.

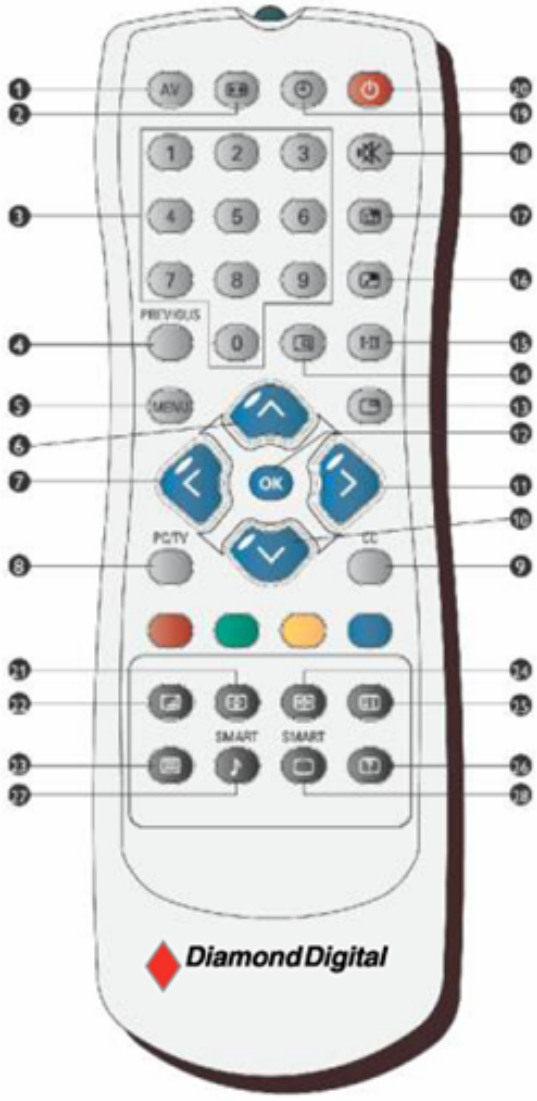
Channel Edit	Choices to add or delete channels from available channels. • Press enter Channel Edit sub-menu • In Channel selection, use or to choose the channel that you wish to add or delete. • Then, press to next selection, use or to toggle between ❍ Activate (add) ❍ Skip (delete) • Repeat the above two steps to add or delete other channels, or, • Press to confirm and return to upper level sub-menu • Press or to adjacent sub-menu selections.
Channel Swap	To swap channel numbers between two channels.So users can put preferred channels at front. • Users can use to enter Manual Store sub-menu, • or to select between selections. • Then, to confirm.
Channel Swap sub-menu	
From	Choose a channel number to be swapped from. • Press or to select a channel. • to confirm and return to upper level sub-menu.
To	Choose a target channel number to be swapped to. • Use or to select channel. • to confirm and return to upper level sub-menu.
Exchange	Execute channel swap. • Users can press to execute the swapping move.

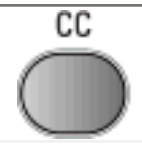
Name Edit	Modify the channel name from a broadcaster to a user preferred one. • Users can use to open function • Use or to select channel. • Press to name input line. • Use or to select from A to Z, or to open adjacent alphabet. • Press to confirm and return to upper level sub-menu.
Channel Sort	Sort channel name sequence in alphabetical order, from A to Z. Those channels without a name will be placed at the end of the sequence according to their frequencies, from small to large. • Users can use to enter. • Press to start sorting.

Remote Control

On Screen Display • Using Your Remote Control

Using Your Remote Control



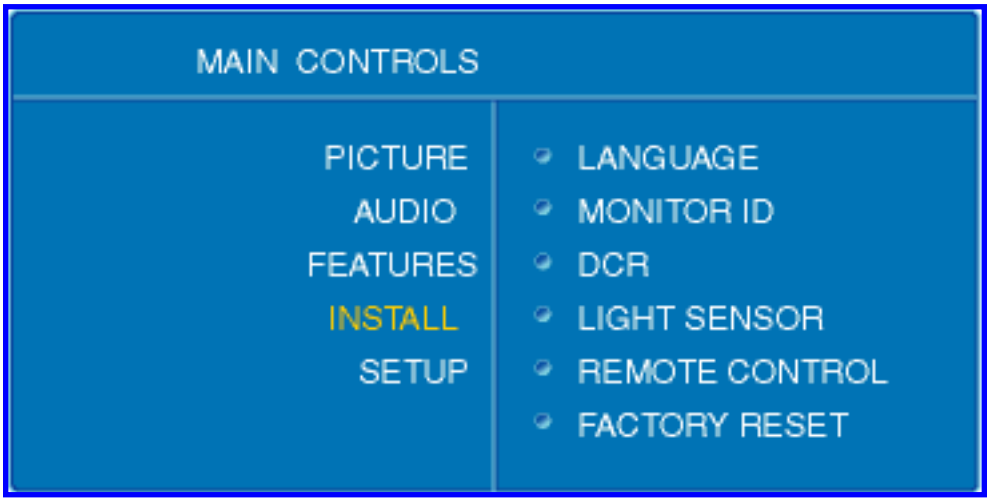
1		**AV source:** • To select TV/video source in TV and also PIP window. • If TV is in Standby mode, press this button to switch the unit ON.
2		**Mode:** Screen aspect ratio, switch between 4:3, 16:9, wide screen, and super wide.
3		**Numerical keys:** • For direct access to programs. • If TV is in Standby mode, pressing any number will turn the TV on.
4		**Previous program:** Jump to the previous TV channel.
5		**Menu:** Turn the On-screen-display (OSD) menu on or off.
6		• Move the cursor up in OSD • Channel up
7		• Move the cursor left in OSD • Adjust volume down
8		Switching between PC and TV mode.
9		**Closed Caption:** Function available in North America and Asia Pacific models only.
10		• Move the cursor down in OSD • Channel down

11		• Move the cursor right in OSD • Adjust volume up
12		Confirm the chosen OSD function
13		**Freeze:** Freeze the screen in video mode or PIP.
14		**Status:** Display channel number, video/PC mode, and sound mode information.
15		**Sound select:** • Switch between mono and stereo, or to choose between Dual I and Dual II for bilingual transmissions. • For TV sets fitted with NICAM, depending on transmission, you can switch between NICAM stereo and Mono, or between NICAM Dual I, NICAM Dual II, and Mono.
16		**PIP Size:** Adjusts Picture-in-Picture (PIP) window size between small, medium, large, picture-by-picture (PBP or split screen), and off.
17		**PIP position:** Change PIP window location on the screen between upper right, lower right, lower left, and upper left.
18		**Mute:** Disables audio: To enable audio, press the button again.
19		**Sleep Timer:** Selects a period of time before the unit will switch off automatically.
20		**Standby:** Sets the TV to standby mode temporary.
27		**Smart Sound:** Select an audio effect from Music, Theatre, News, and Personal.
28		**Smart Picture:** Select a picture setting from Sports, Movie, Weak signal, Night, Multimedia, and Personal.
The following buttons are using in Teletext mode only, which are available in Europe and some of the Asia Pacific TV systems.		
21		**Teletext Enlarge:** Enlarge teletext context to two times larger.

22		**Teletext Mix:** Adjust opacity of Teletext background.
23		**Teletext On/Off:** Teletext ON or OFF.
24		**Teletext Hold:** Freezes the teletext page.
25		**Main Index:** Press the button to return to the main index.
26		**Teletext Reveal/Conceal:** To view the concealed text information (e.g. question/answer, quiz, etc.) sent by the teletext provider. Press the button to toggle between conceal and reveal mode.
		These four color buttons allow you to access an item or the page indicated by corresponding color in teletext.

Warning:

If you are going to control the monitor TV via RS232 interface, to avoid conflicts, you should disable the remote control first. Enter the OSD menu to select Install, or use the remote control to select it. Once the remote control is disabled, you can use the buttons on the unit to enter OSD and enable it, or enable remote control via RS232 command.



Customer Care & Warranty

Service Contacts

If problems remain after checking this manual, please contact your place of purchase or contact:

Australian Service Contacts

To locate your nearest Mitsubishi Electric Authorised Service Centre, visit the Customer Support section of our web site at **www.MitsubishiElectric.com.au** , or contact the Service Department for your state:

New South Wales and Australian Capital Territory
348 Victoria Road
Rydalmere, NSW, 2116
Telephone: 1300 651 808
Fax: (02) 9684-7684

Queensland
12 / 469 Nudgee Road
Hendra, QLD, 4011
(Airlink Business Park)
Telephone: (07) 3623-2000
Fax: (07) 3630-1888

South Australia and Northern Territory
77 Port Road
Hindmarsh, SA, 5007
Telephone: (08) 8340-0444
Fax: (08) 8340-0555

Victoria and Tasmania
4 / 303 Burwood Hwy
East Burwood, VIC, 3151
Telephone: (03) 9262-9899
Fax: (03) 9262-9850

Western Australia
5 / 329 Collier Road
Bassendean, WA, 6054
Telephone: (08) 9377-3411
Fax: (08) 9377-3499

FAQs (Frequently Asked Questions)

Safety and Troubleshooting • General FAQs • Screen Adjustments • Compatibility with Other Peripherals • LCD Panel Technology • Ergonomics, Ecology and Safety Standards • Troubleshooting • Regulatory Information • Other Related Information

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General FAQs

Q: When I install my monitor what should I do if the screen shows 'Cannot display this video mode'?

A: Set the video source to output at 1360x768 @60Hz.

1. Unplug all cables, then connect your PC to the monitor that you used previously.
2. In the Windows Start Menu, select Settings/Control Panel. In the Control Panel Window, select the Display icon. Inside the Display Control Panel, select the 'Settings' tab. Under the setting tab, in box labeled 'desktop area', move the slidebar to 1360x768 pixels (32").
3. Open 'Advanced Properties' and set the Refresh Rate to 60Hz, then click OK.
4. Restart your computer and repeat step 2 and 3 to verify that your PC is set at 1360x768@60Hz (32").
5. Shut down your computer, disconnect your old monitor and reconnect your Mitsubishi Electric LCD display.
6. Turn on your monitor, then turn on your PC.

Q: What should I do when screen shows: "This is 85Hz Overscan, Change Computer Display Input To 1360 x 768 @ 60Hz" ?

A: It means the signal output from your videocard is 85Hz -- outside the range that the monitor can display. New Generation LCD monitors can temporarily override the overscan, providing you with 10 minutes to change the refresh rate to the recommended settings.

Here's how:

Go to your Windows Start menu. Select *Settings*, then *Control Panel*. Select *Display*. Move to *Settings* and click on the *Advanced* button. Under *Adaptor*, change the refresh rate to 56~75Hz.

You have 10 minutes to complete the operation; if you do not complete within 10 minutes, power off the monitor then power on and make the appropriate changes.

Q: What does 'refresh rate' mean in connection with an LCD monitor?

A: The refresh rate is of much less relevance for LCD monitors. LCD monitors display a stable, flicker-free image at 60Hz. There is no visible difference between 85Hz and 60Hz. Setting a high refresh rate may result in image corruption due to the LCD circuitry expecting a lower refresh rate than is provided by the video source.

Q: How do I adjust the resolution?

A: Your video card/graphic driver and monitor together determine the available resolutions. You can select the desired resolution under Windows® Control Panel with the "Display properties".

Q: What if I get lost when I am making monitor adjustments?

A: Simply press the OK button, then select 'Reset' to recall all of the original factory settings.

Q: What is the Auto function?

A: The *AUTO adjustment* key restores the optimal screen position, phase and clock settings at the press of a single button – without the need to navigate through OSD menus and control keys.

Note: Auto function is available in selected models only.

Q: My Monitor has no power (Power LED does not light up). What should I do?

A: Make sure the AC power cord is connected to the Monitor.

Q: Will the LCD monitor accept an interlaced signal under PC models?

A: No. If an Interlace signal is used, the screen displays both odd and even horizontal scanning lines at the same time, thus distorting the picture.

Q: What does the Refresh Rate mean for LCD?

A: Unlike CRT display technology, where the rate at which the picture is redrawn determines the amount of flicker, an active matrix display uses an active element (TFT) to control each individual pixel and therefore the refresh rate is not applicable to LCD technology.

Q: Will the LCD screen be resistant to scratches?

A: A protective coating is applied to the surface of the LCD, which is durable to a certain extent (approximately up to the hardness of a 2H pencil). In general, it is recommended that the panel surface is not subject to any excessive shocks or scratches. An optional protective cover with greater scratch resistance is also available.

Q: How should I clean the LCD surface?

A: For normal cleaning, use a clean, soft cloth. For extensive cleaning, please use isopropyl alcohol. Do not use other solvents such as ethyl alcohol, ethanol, acetone, hexane, etc.

Q: Can the DV320 LCD Display be mounted on the wall ?

A: Yes. The DV320 can be wall mounted, using an optional VESA mount.
The standard VESA mount holes on the back cover allows the user to mount the display on any VESA standard arm or accessory.

Screen Adjustments

Q: When I install my monitor, how do I get the best performance from the monitor?

A: For best performance, ensure your display settings are set to 1360x768@60Hz. Note: You can check the current display settings by pressing the OSD OK button once. The current display mode is shown in product information in OSD main controls.

Q: How do LCDs compare to CRTs in terms of radiation?

A: Because LCDs do not use an electron gun, they do not generate the same amount of radiation at the screen surface.

Compatibility with other Peripherals

Q: Can I connect my LCD Display to any PC, workstation or Mac?

A: Yes. All Mitsubishi Electric LCD monitors are fully compatible with standard PCs, Macs and workstations. You may need a cable adapter to connect the monitor to your Mac system. Please contact your dealer/retailer for more information.

Q: Are Mitsubishi Electric LCD Displays Plug-and-Play?

A: Yes, the LCD Display is Plug-and-Play compatible with Windows® 9x, 2000 and XP.

Q: What is USB (Universal Serial Bus)?

A: Think of USB as a smart plug for PC peripherals. USB automatically determines resources (like driver software and bus bandwidth) required by peripherals. USB makes necessary resources available without user intervention. USB eliminates the fear of removing the computer case to install circuit board cards for add-on peripherals. More and more peripherals for multimedia computers come on the market every day. With USB, up to 127 devices can run simultaneously on one computer. USB permits "hot plug-in." No need to shut down, before installing a device.

Q: What is a USB hub ?

A: A USB hub provides additional connections to the Universal Serial Bus. A hub's upstream port connects a hub to the host, usually a PC. Multiple downstream ports in a hub allows connection to another hub or device, such as a USB keyboard, camera or printer.

LCD Panel Technology

Q: What is a Liquid Crystal Display?

A: A Liquid Crystal Display (LCD) is an optical device that is commonly used to display ASCII characters and images on digital items such as watches, calculators, portable game consoles, etc. LCD is the technology used for displays in notebooks and other small computers. Like light-emitting diode and gas-plasma technologies, LCD allows displays to be much thinner than cathode ray tube (CRT) technology. LCD consumes much less power than LED and gas-displays because it works on the principle of blocking light rather than emitting it.

Q: How are LCDs made?

A: LCDs are created from two glass plates separated from each other at a distance of a few microns. The plates are filled with liquid crystal and then sealed together. The top plate is colored with an RGB pattern to make the color filter. Polarizers are then glued to both plates. This combination is sometimes called 'glass' or 'cell.' The LCD cell is assembled into a 'module' by adding the backlight, driver electronics and frame.

Q: What is polarization ?

A: Polarization is basically directing light to shine in one direction. Light is electromagnetic waves. Electric and magnetic fields oscillate in a direction perpendicular to the propagation of the light beam. The direction of these fields is called the 'polarization direction'. Normal or non-polarized light has fields in several directions; polarized light has a field in only one direction.

Q: What differentiates passive matrix LCDs from active matrix LCDs?

A: An LCD is made with either a passive matrix or an active matrix display grid. An active matrix has a transistor located at each pixel intersection, requiring less current to control the luminance of a pixel. For this reason, the current in an active matrix display can be switched on and off more frequently, improving the screen refresh time (your mouse pointer will appear to move more smoothly across the screen, for example). The passive matrix LCD has a grid of conductors with pixels located at each intersection in the grid.

Q: How does a TFT LCD Panel work?

A: On each column and row of the TFT LCD panel, a data source drive and a gate drive are attached, respectively. The TFT drain of each cell is connected to the electrode. The molecular arrangement of liquid crystal elements differ according to whether it is impressed with voltage or not. It varies the direction of polarized light and the amount of light by letting it through different arrays of liquid crystal elements. When two polarized filters are arranged vertically on a polarized light pole, the light that passes through the upper polarized panel is turned 90 degrees along with the spiral structure of the liquid crystal molecules and goes through the polarized filter at the bottom. When impressed with voltage, liquid crystal molecules are arranged vertically from the original spiral structure and the direction of the light is not turned through 90 degrees. In this case, light that comes through the top polarized panel may not go through the polarized panel at the bottom.

Q: What are the advantages of TFT LCD compared with CRT?

A: In a CRT monitor, a gun shoots electrons and general light by colliding polarized electrons on fluorescent glass. Therefore, CRT monitors basically operate with an analog RGB signal. A TFT LCD monitor is a device that displays an input image by operating a liquid crystal panel. The TFT has a fundamentally different structure than a CRT: Each cell has an active matrix structure and independent active elements. A TFT LCD has two glass panels and the space between them is filled with liquid crystal. When each cell is connected with electrodes and impressed with voltage, the molecular structure of the liquid crystal is altered and controls the amount of inlet lighting to display images. A TFT LCD has several advantages over a CRT, since it can be very thin and no flickering occurs because it does not use the scanning method.

Q: Why is vertical frequency of 60Hz optimal for an LCD monitor?

A: Unlike a CDT monitor, the TFT LCD panel has a fixed resolution. For example, an XGA monitor has 1024x3 (R, G, B) x 768 pixels and a higher resolution may not be available without additional software processing. The panel is designed to optimize the display for a 65MHz dot clock, one of the standards for XGA displays. Since the vertical/horizontal frequency for this dot clock is 60Hz/48kHz, the optimum frequency for this monitor is 60Hz.

Q: What kind of wide-angle technology is available? How does it work?

A: The TFT LCD panel is an element that controls/displays the inlet of a backlight using the dual-refraction of a liquid crystal. Using the property that the projection of inlet light refracts toward the major axis of the liquid element, it controls the direction of inlet light and displays it. Since the refraction ratio of inlet light on liquid crystal varies with the inlet angle of the light, the viewing angle of a TFT is much narrower than that of a CDT. Usually, the viewing angle refers to the point where the contrast ration is 10. Many ways to widen the viewing angle are currently being developed and the most common approach is to use a wide viewing angle film, which widens the viewing angle by varying the refraction ratio. IPS (In Plane Switching) or MVA (Multi Vertical Aligned) is also used to give a wider viewing angle.

Q: Why is there no flicker on an LCD Monitor?

A: Technically speaking, LCDs do flicker, but the cause of the phenomenon is different from that of a CRT monitor -- and it has no impact of the ease of viewing. Flickering in an LCD monitor relates to usually undetectable luminance caused by the difference between positive and negative voltage. On the other hand, CRT flickering that can irritate the human eye occurs when the on/off action of the fluorescent object becomes visible. Since the reaction speed of liquid crystal in an LCD panel is much slower, this troublesome form of flickering is not present in an LCD display.

Q: Why is an LCD monitor virtually free of Electro Magnetic Interference?

A: Unlike a CRT, an LCD monitor does not have key parts that generate Electro Magnetic Interference, especially magnetic fields. Also, since an LCD display utilizes relatively low power, its power supply is extremely quiet.

Ergonomics, Ecology and Safety Standards

Q: What is the CE mark?

A: The CE (Conformité Européenne) mark is required to be displayed on all regulated products offered for sale on the European market. This 'CE' mark means that a product complies with the relevant European Directive. A European Directive is a European 'Law' that relates to health, safety, environment and consumer protection, much the same as the U.S. National Electrical Code and UL Standards.

Q: Does the LCD monitor conform to general safety standards?

A: Yes. Mitsubishi Electric LCD monitors conform to the guidelines of MPR-II and TCO 99/03 standards for the control of radiation, electromagnetic waves, energy reduction, electrical safety in the work environment and recyclability. The specification page provides detailed data on safety standards.

More information is provided in the Regulatory Information section.

Troubleshooting

Safety and Troubleshooting • FAQs • Common Problems • TV and Audio Problems • Video Problems • Remote Control Problems • Product Specific Problems • OSD Warning Message • Regulatory Information • Other Related Information

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This page deals with problems that can be corrected by the user. If the problem still persists after you have tried these solutions, contact your nearest Mitsubishi Electric dealer.

Common Problems

Symptoms	Having this problem?	Check these items
No Video/ Power LED off	No picture, the LCD Monitor TV is not working	• Check connection integrity at both ends of the video cable and/or power cord. • Electric outlet verification • Ensure AC power at the rear of the monitor TV is switched on.
No Video/ Power LED on	No picture or no brightness	• Increase brightness and contrast controls. • Perform the LCD Monitor TV self-test feature check. • Check for bent or broken pins in video cable connector.
Poor Focus	Picture is fuzzy, blurry or ghosting	• Auto adjust image through Menu -> Image Setting -> Auto Adjust. • Adjust Phase and Clock controls via OSD. • Eliminate video extension cables. • Perform the LCD Monitor TV factory reset (via Menu -> Factory Reset -> All Settings). • Lower video resolution or increase font size.

Shaky/Jittery Video	Wavy picture or fine movement	• Auto adjust image through Menu -> Image Setting -> Auto Adjust • Adjust Phase and Clock controls via OSD • Perform the LCD Monitor TV factory reset (via Menu -> Factory Reset -> All Settings) • Check environmental factors • Relocate and test in other room
Missing Pixels	LCD screen has spots	• Cycle power on-off • These are pixels that are permanently off and is a natural defect that occurs in LCD technology
Stuck-on Pixels	LCD screen has bright spots	• Cycle power on-off • These are pixels that are permanently on and is a natural defect that occurs in LCD technology
Brightness Problems	Picture too dim or too bright	• Perform the LCD Monitor TV factory reset (via Menu -> Factory Reset -> All Settings) • Auto adjust image through Menu -> Image Setting -> Auto Adjust • Adjust brightness & contrast controls **Note: When operating in DVI mode, the contrast adjustment is not available.**
Geometric Distortion	Screen not centered correctly	• Perform the LCD Monitor TV reset on "Position Settings Only" • Auto adjust image through Menu -> Image Setting -> Auto Adjust • Adjust the centering controls • Ensure the LCD Monitor TV is in proper video mode **Note: When operating in DVI mode, the positioning adjustments are not available.**

Horizontal/Vertical Lines	Screen has one or more lines	• Perform the LCD Monitor TV reset • Auto adjust image through Menu -> Image Setting -> Auto Adjust • Adjust Phase and Clock controls via OSD • Check for bent or broken pins in the video cable connector **Note: When operating in DVI mode, the Pixel Clock and Phase adjustments are not available.**
Sync Problems	Screen is scrambled or appears torn	• Perform the LCD Monitor TV reset • Push Auto Adjust button • Adjust Phase and Clock controls via OSD • Check for bent or broken pins • Boot up in the "safe mode"
LCD Scratched	Screen has scratches or smudges	• Turn the LCD Monitor TV off and clean the screen
Safety Related Issues	Visible signs of smoke or sparks	• Do not perform any troubleshooting steps • The LCD Monitor TV needs to be replaced
Intermittent Problems	The LCD Monitor TV malfunctions on & off	• Ensure the LCD Monitor TV is in proper video mode • Ensure video cable connection between computer and the LCD monitor TV is secured • Perform the LCD Monitor TV factory reset (via Menu -> Factory Reset -> All Settings) • Perform the LCD Monitor TV self-test feature check to determine if the intermittent problem occurs in self-test mode

TV and Audio Problems

Poor TV signal reception	Abnormal picture seen from the screen	• The proximity of mountains or high buildings may be responsible for ghost pictures, echoing or shadows. In this case, try manually adjusting your pictures: see 'fine tuning' or adjust the direction of the outside aerial.
No TV picture	No picture when TV input was selected	• Have you connected the aerial socket properly? Have you chosen the right system? Poorly connected SCART cables or aerial sockets are often the cause of picture or sound problems (sometimes the connectors can become half disconnected if the LCD Monitor TV set is moved or turned). Check all connections.
No sound	No sound output when a program with sound was playing	• Ensure that the audio cables are firmly connected to both the audio input connectors on your the LCD Monitor TV and audio output connectors on your PC or Video player. • If on certain TV channels you receive a picture but no sound, this means that you do not have the correct TV system. Modify the SYSTEM setting.
Video Problems		
No Video	No signal indicator is displayed.	• Check Video Input Selection ❍ Composite: Yellow colored RCA jack ❍ S-Video: Typically a round 4 pin jack ❍ Component: Typically 3 RCA jacks of Green, Red and Blue. • Make sure you did not plug the video cable to video output port behind the LCD monitor TV.
Low Quality DVD playback	Picture not crisp and some color distortion	• Check DVD connection ❍ Composite gives good picture ❍ S-Video gives better picture ❍ Component gives best picture

No sound	See video but no audio	• Check if the LCD Monitor TV volume is turn off of muted. • Connect the audio cable securely. • Audio cable is connected incorrectly. • Verify that the audio source is selected correctly in the OSD.

Remote Control Problems

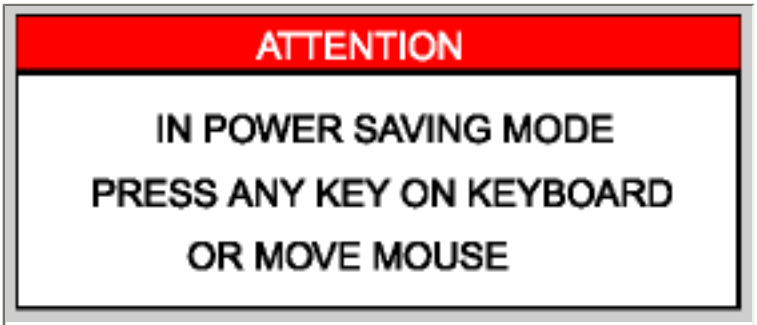
Remote control does not work properly	No response from the LCD Monitor TV when remote is pressed	• Point the remote control directly at the remote sensor on the LCD Monitor TV. • Replace both batteries with new ones. • Make sure the remote control is not disabled (for disable/enable the remote control, please refer to the section of Remote Control).

Product Specific Problems

Screen image is too small	Image is centered on screen, but does not fill entire viewing area	• Perform the LCD Monitor TV factory reset (via Menu -> Factory Reset -> All Settings).
Cannot adjust the LCD Monitor TV with the buttons at the side of the unit	OSD does not appear on the screen	• Turn the LCD Monitor TV off and unplug the power cord and then plug back and power on.

OSD Warning Messages

A warning message may appear on the screen indicating the LCD Monitor TV current status.

	When user sees this warning message, it means that the LCD Monitor TV is in adjustment process.
	A warning message may appear on the screen indicating that the LCD Monitor TV is out of sync range. See Specifications for the Horizontal and Vertical frequency ranges addressable by this the LCD Monitor TV. Recommended mode is 1360 x 768 @ 60Hz.
	This message means that there is no video input signal.
	The LCD Monitor TV is in a power saving mode (in PC mode).
	The main OSD menu is unlocked.
	The main OSD menu is locked.

Regulatory Information

CE Declaration of Conformity • Display Power Management Signaling • Federal Communications Commission (FCC) Notice (U.S. Only)
• VCCI Class 2 Notice (Japan Only)
• BSMI Notice (Taiwan Only)
• Waste Electrical and
Electronic Equipment-WEEE

Safety and Troubleshooting • Troubleshooting • Other Related Information • Frequently Asked Questions (FAQs)

CE Declaration of Conformity

Mitsubishi Electric declare under our responsibility that the product is in conformity with the following standards:

- EN60950-1:2001 (Safety requirement of Information Technology Equipment)
- EN55022:1998 (Radio Disturbance requirement of Information Technology Equipment)
- EN55024:1998 (Immunity requirement of Information Technology Equipment)
- EN61000-3-2:2000 (Limits for Harmonic Current Emission)
- EN61000-3-3:1995 (Limitation of Voltage Fluctuation and Flicker)
- EN55013:1990+A12+A13+A14 (Radio Disturbance requirement of Sound and Television Receivers and associated)
- EN55020:1994+A12 (Immunity requirement of Sound and Television Receivers and associated)
- IEC Guide 112:2000 (Guide on the Safety of Multimedia Equipment) following provisions of directives applicable
- 73/23/EEC (Low Voltage Directive)
- 89/336/EEC (EMC Directive)
- 93/68/EEC (Amendment of EMC and Low Voltage Directive)

and is produced by a manufacturing organization on ISO9000 level.

The product also comply with the following standards
- ISO9241-3, ISO9241-7, ISO9241-8 (Ergonomic requirement for Visual Display)
- ISO13406-2 (Ergonomic requirement for Flat panels)
- GS EK1-2000 (GS specification)
- prEN50279:1998 (Low Frequency Electric and Magnetic fields for Visual Display)
- MPR-II (MPR:1990:8/1990:10 Low Frequency Electric and Magnetic fields)

- TCO99, TCO03 (Requirement for Environment Labelling of Ergonomics, Energy, Ecology and Emission, TCO: Swedish Confederation of Professional Employees) for TCO versions

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Display Power Management Signaling

DV320

This monitor is equipped with a function for saving energy which supports the VESA Display Power Management Signaling (DPMS) standard. This means that the monitor must be connected to a computer which supports VESA DPMS to fulfill the requirements in the NUTEK specification 803299/94. Time settings are adjusted from the system unit by software.

NUTEK	VESA State	LED Indicator	Power Consumption
Normal operation	ON	Blue	100 W (typical)
Power Saving Alternative 2 One step	OFF(Sleep)	Amber	< 5 W
	Switch OFF	OFF	< 3 W

We recommend you switch off the monitor when it is not in use for quite a long time.

Other Related Information

Safety and Troubleshooting • FAQs • Troubleshooting • Regulatory Information • Information for Users in the U. S. • Information for Users Outside the U.S

Information for Users outside the U.S.

For units set at 230 V:

Use a Cord Set consisting of a minimum 18 AWG cord and grounding type attachment plug rated 15 A, 250 V. The Cord Set should have the appropriate safety approvals for the country in which the equipment will be installed and / or be marked HAR.

Mitsubishi Electric

Pixel Defect Policy

Product Features • Technical Specifications • Resolution and Preset Modes • Automatic Power Saving • Physical Specification • Pin Assignment • Product Views

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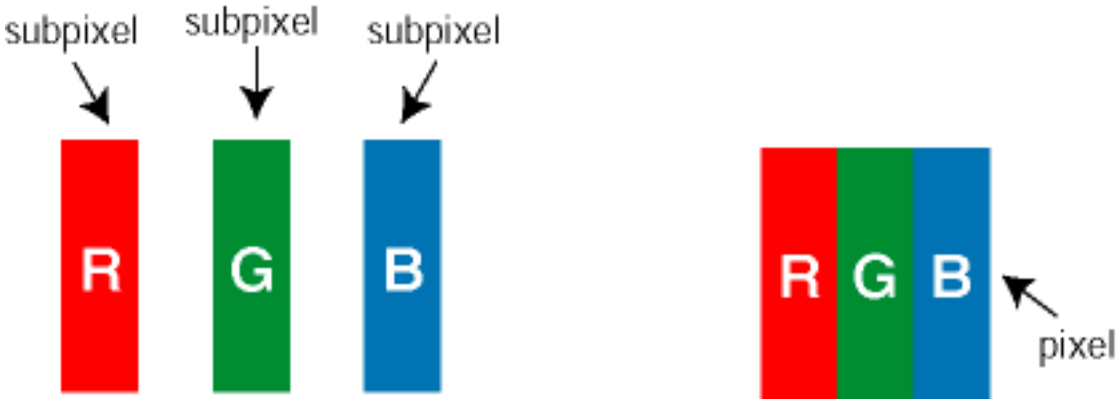
Mitsubishi Electric LCD Panel Pixel Defect Policy

Mitsubishi Electric strives to deliver the highest quality products. We use some of the industry's most advanced manufacturing processes and practise stringent quality control. However, pixel or sub pixel defects on the TFT LCD panels used in flat panel monitors are sometimes unavoidable.
No manufacturer can guarantee that all panels will be free from pixel defects, but Mitsubishi Electric guarantees that any monitor with an unacceptable number of defects will be repaired or replaced under warranty. This notice explains the different types of pixel defects and defines acceptable defect levels for each type. In order to qualify for repair or replacement under warranty, the number of pixel defects on a TFT LCD panel must exceed these acceptable levels. For example, no more than 0.0004% of the sub pixels on a 32" XGA monitor may be defective. Furthermore, Mitsubishi Electric sets even higher quality standards for certain types or combinations of pixel defects that are more noticeable than others. This policy is valid worldwide.

Pixels and Sub pixels

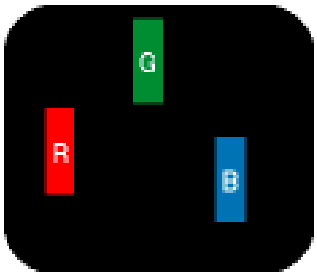
A pixel, or picture element, is composed of three sub pixels in the primary colors of red, green and blue. Many pixels together form an image. When all sub pixels of a pixel are lit, the three colored subpixels together appear as a single white pixel. When all are dark, the three colored sub pixels together appear as a single black pixel. Other combinations of lit and dark sub pixels appear as single pixels of other colors.



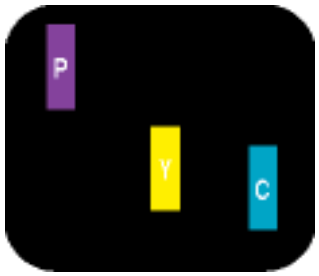
Types of Pixel Defects

Pixel and sub pixel defects appear on the screen in different ways. There are two categories of pixel defects and several types of sub pixel defects within each category.

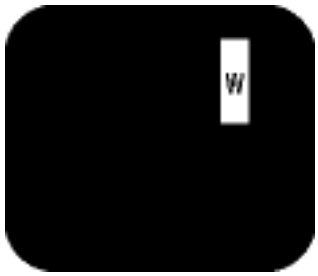
Bright Dot Defects Bright dot defects appear as pixels or sub pixels that are always lit or 'on'. That is, a *bright dot* is a sub-pixel that stands out on the screen when the monitor displays a dark pattern. There are the types of bright dot defects:



One lit red, green or blue sub pixel



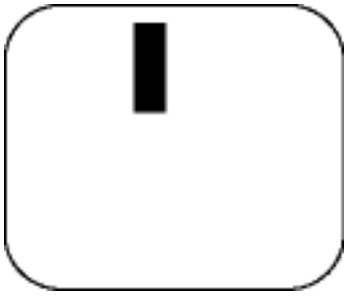
Two adjacent lit sub pixels:
- Red + Blue = Purple
- Red + Green = Yellow
- Green + Blue = Cyan (Light Blue)



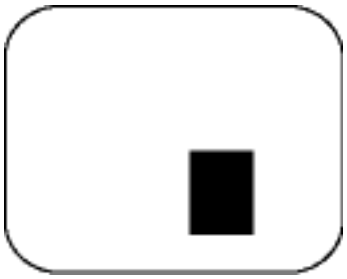
Three adjacent lit sub pixels (one white pixel)

A red or blue *bright dot* must be more than 50 percent brighter than neighboring dots while a green bright dot is 30 percent brighter than neighboring dots.

Black Dot Defects Black dot defects appear as pixels or sub pixels that are always dark or 'off'. That is, a *dark dot* is a sub-pixel that stands out on the screen when the monitor displays a light pattern. These are the types of black dot defects:



One dark sub pixel



Two or three adjacent dark sub pixels

Proximity of Pixel Defects

Because pixel and sub pixels defects of the same type that are near to one another may be more noticeable, Mitsubishi Electric also specifies tolerances for the proximity of pixel defects.

Pixel Defect Tolerances

In order to qualify for repair or replacement due to pixel defects during the warranty period, a TFT LCD panel in a Mitsubishi Electric flat panel monitor must have pixel or sub pixel defects exceeding the tolerances listed in the following tables.

BRIGHT DOT DEFECTS	ACCEPTABLE LEVEL
MODEL	**DV320**
1 lit sub pixel	0
2 adjacent lit sub pixels	0
3 adjacent lit sub pixels (one white pixel)	0
75% ~ 50% of Dot	0
50% ~ Less Dot (Weak Dot)	Max 7
Distance between two bright dot defects*	N/A
Total bright dot defects of all types	0

Tiny bright dots less then 50% R/B, 30% G	Max 4

* Bright Dot is defined as dots (sub-pixels) which appeared brightly in the screen when the LCM displayed with whole pattern & Bright Dot's brightess is defined over 50% of the brightness against around. (but, Green bright dot is over 30% of brightness against around)

* Here in Tiny Bright Dot is defined as "for Red and Blue" the bright area should be no longer than 1/2 sub-pixel and for green the bright area should be no larger than 1/3 sub-pixel.

BLACK DOT DEFECTS	**ACCEPTABLE LEVEL**
MODEL	**DV320**
1 dark sub pixel	5 or fewer
2 adjacent dark sub pixels	1 or fewer
3 adjacent dark sub pixels	0
Distance between two black dot defects*	15 mm or more
Total black dot defects of all types	5 or fewer

TOTAL DOT DEFECTS	**ACCEPTABLE LEVEL**
MODEL	**DV320**
Total bright or black dot defects of all types	5 or fewer

Note:

** 1 or 2 adjacent sub pixel defects = 1 dot defect*

Connecting to Your PC, TV Antenna, DVD/VCR etc.

Product Description • Accessory Pack • Connecting to Your PC, TV Antenna, DVD/VCR etc. • Getting Started • Optimizing Performance

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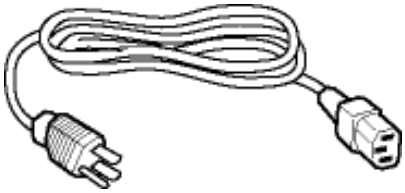
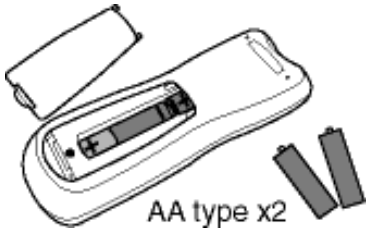
Accessory Pack

Unpack all the parts

	
Power cable	**Remote control & batteries**
DVI-D cable	**VGA signal cable**

Base

Screw pack

2x10W Detachable Speakers

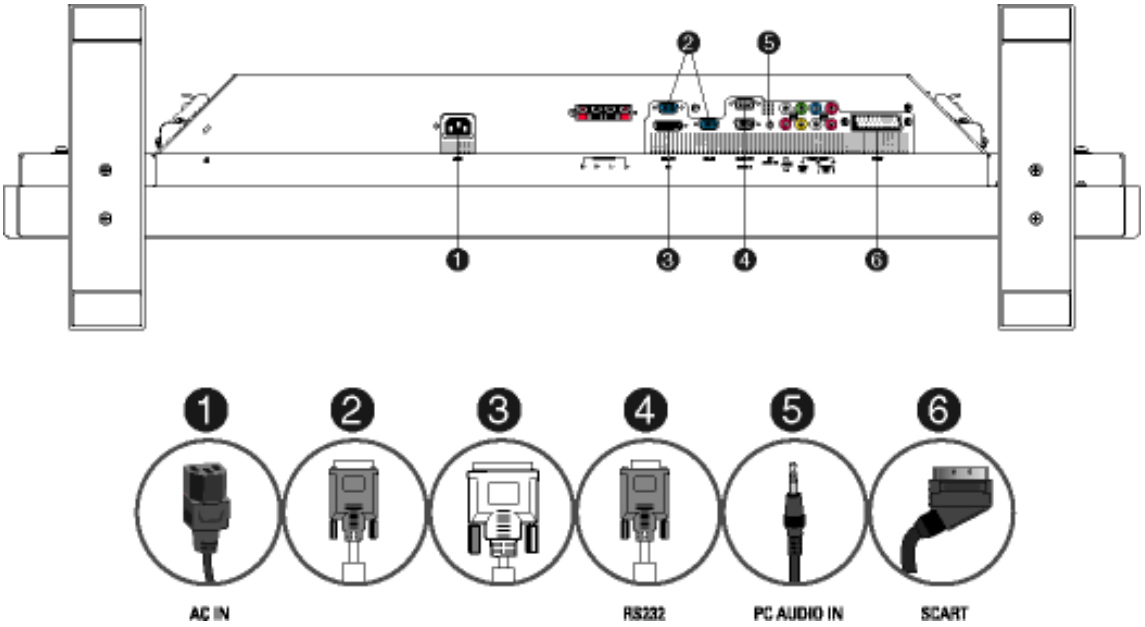
Setting up and connecting your monitor/TV

CAUTION: Ensure that the power to the monitor/TV is switched off before the installation.

- Connecting the monitor/TV

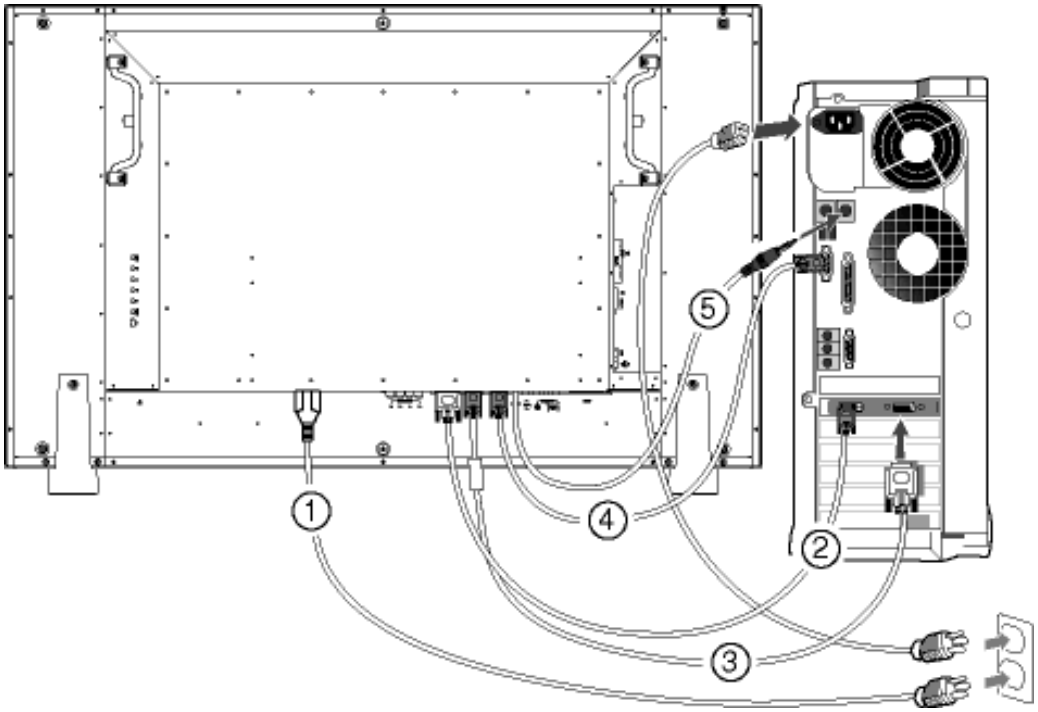
- Connect the cables to the rear of your monitor/TV according to the numbers:

TV model



- Connect to PC

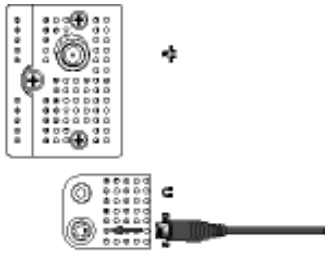
- Connect the cables to the back of your computer by following step 1~5.
- If your monitor displays the computer image the installation has been completed successfully.
- If installation was not successful, see the Troubleshooting section.
- For installation of the monitor driver for Microsoft Windows®, see the Monitor Driver Installation section (Getting Started).

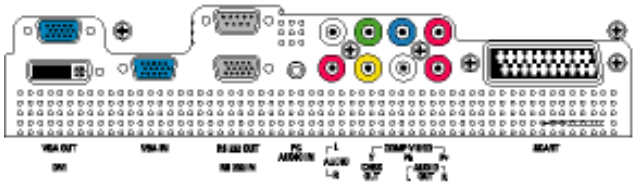


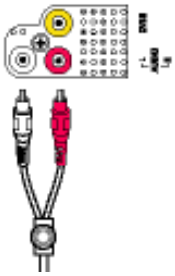
- Connect to DVD/VCD/VCR

Connect to DVD/VCR/VCD through S-VIDEO

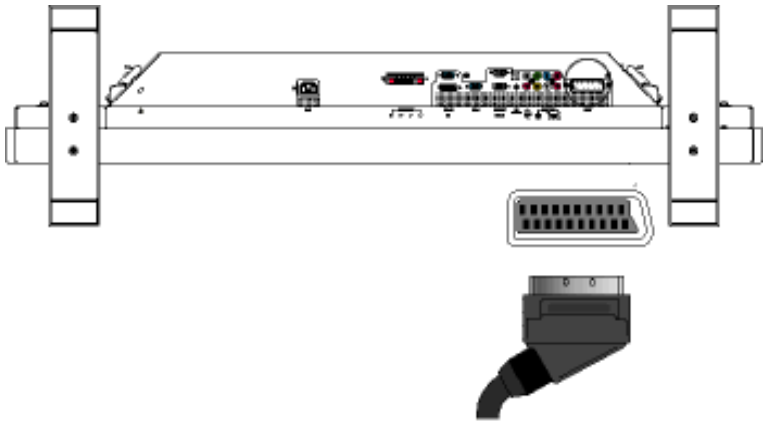
- Connect to DVD/VCR/VCD through S-VIDEO



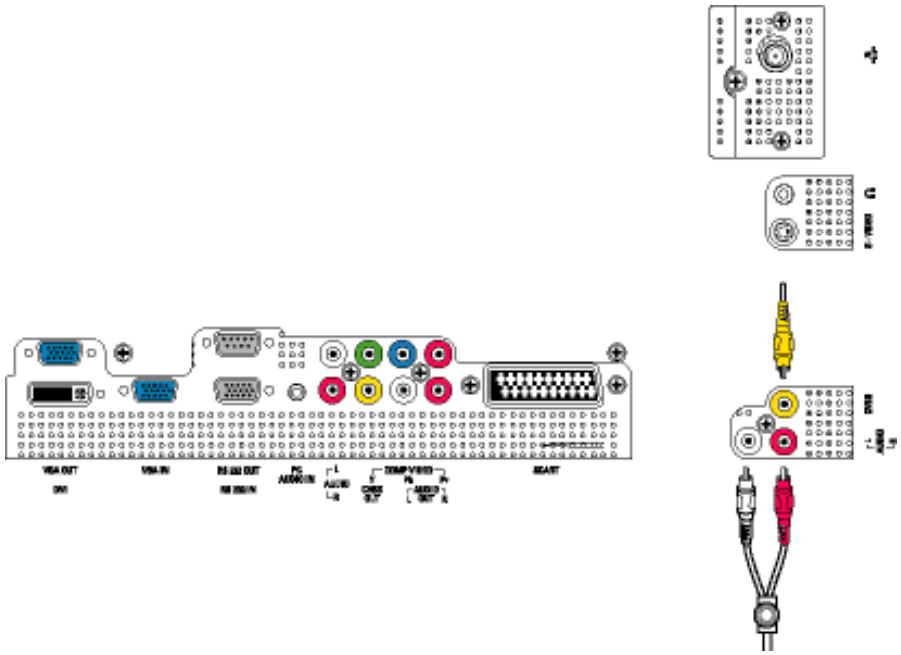




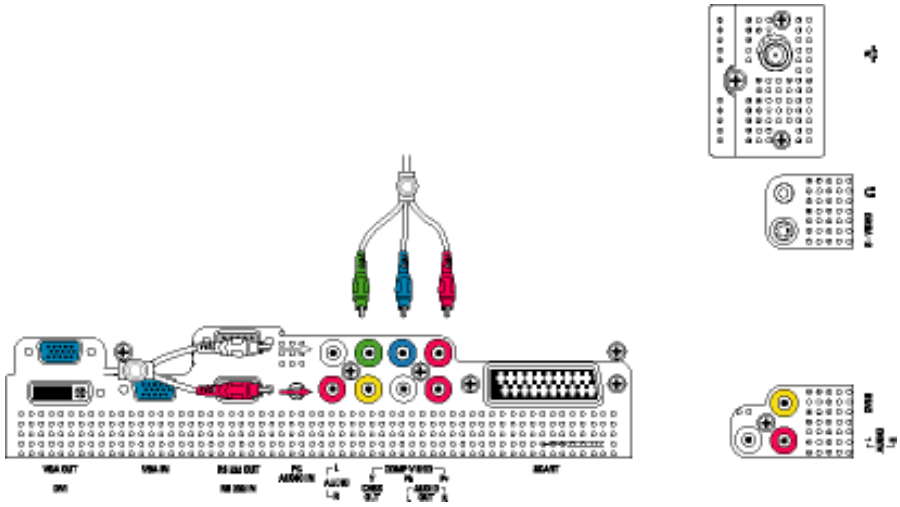
- Connect to DVD/VCR /VCD through SCART (for Europe only)



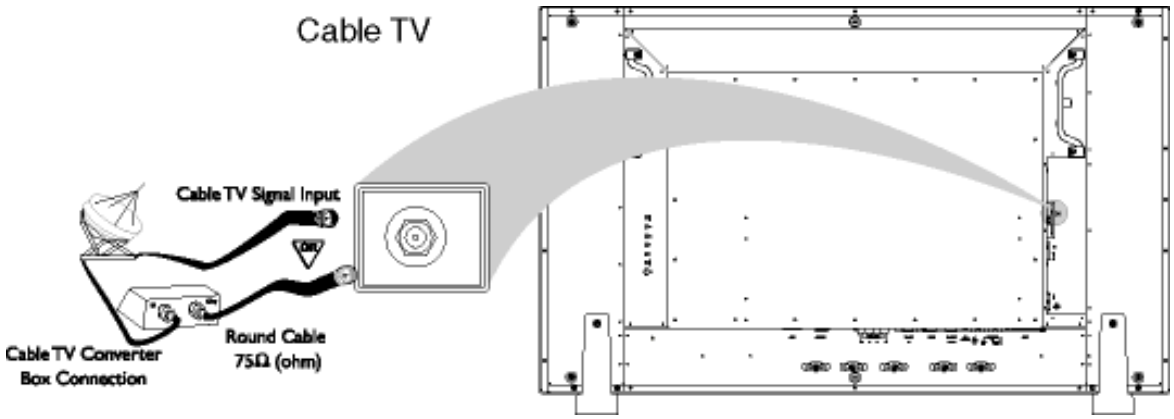
- Connect to DVD/VCR /VCD through composite video (CVBS)



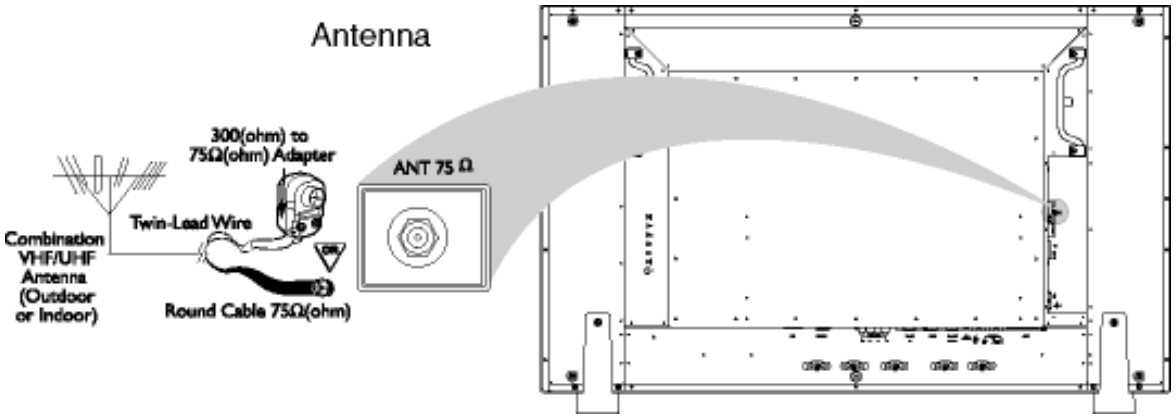
- Connect to DVD/VCR /VCD through component video (YPbPr)

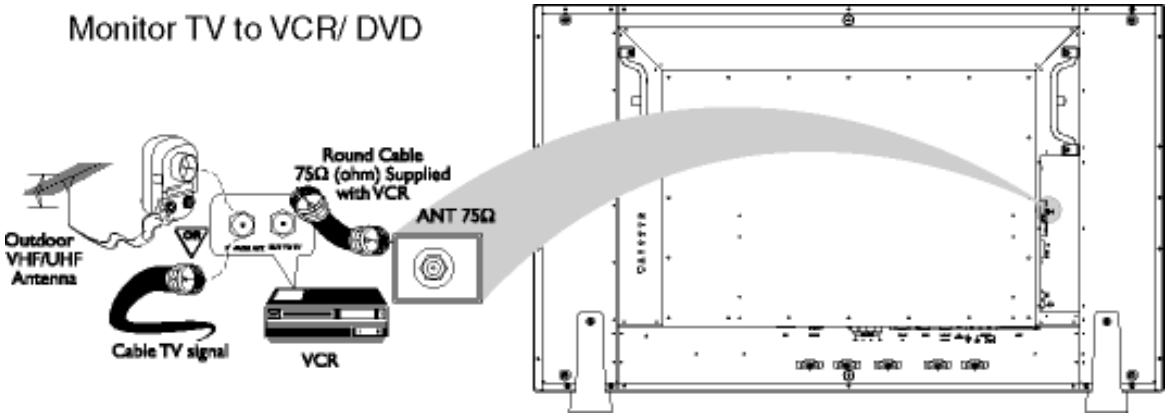


Connecting to Cable TV

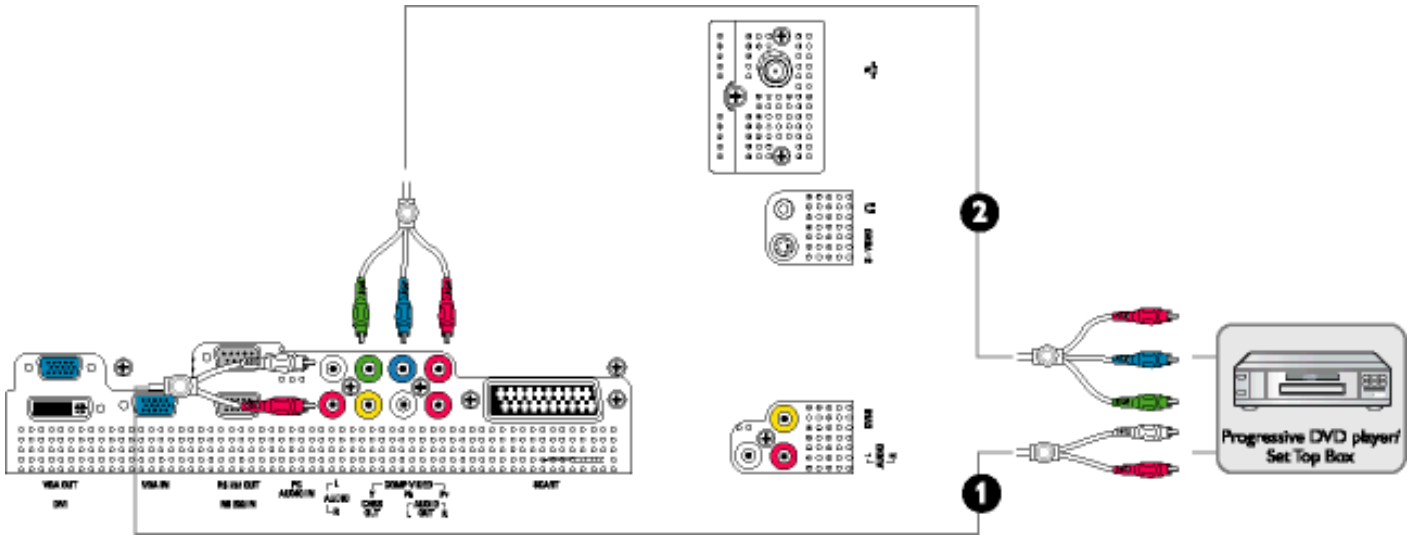


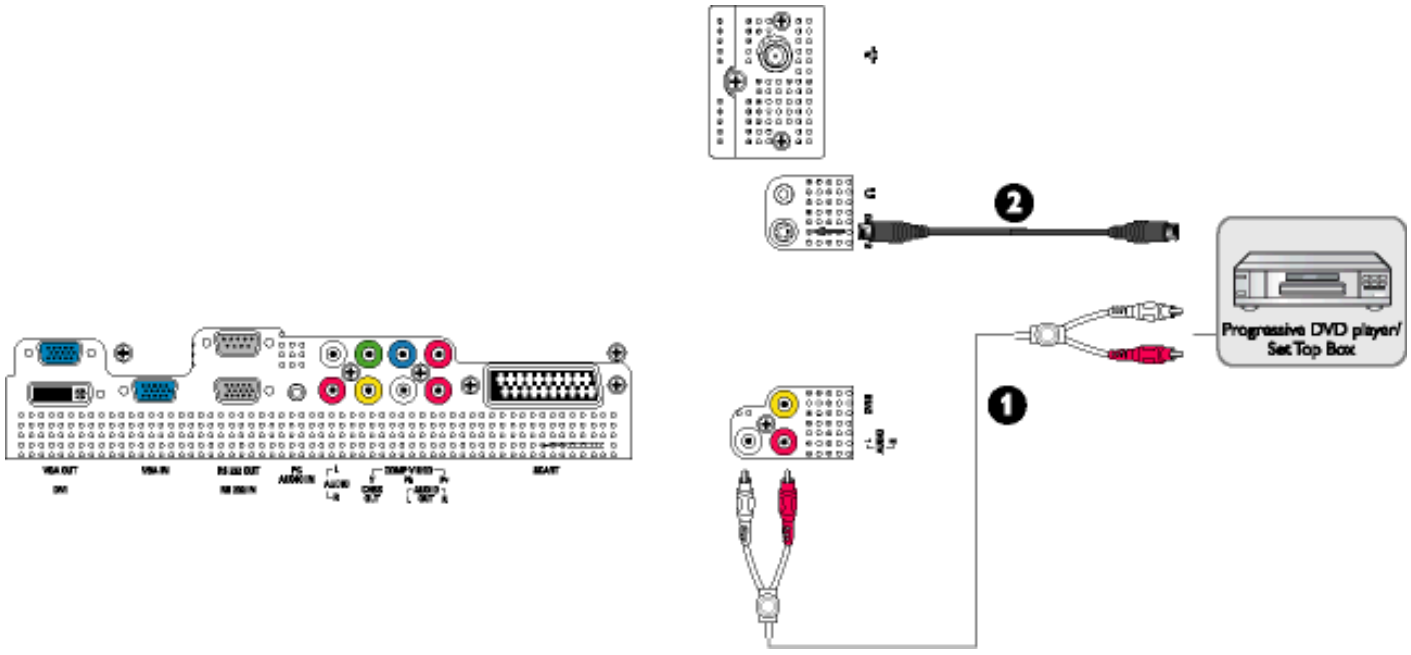
Antenna



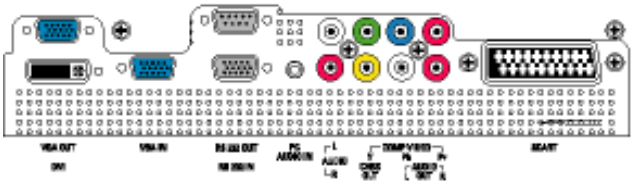


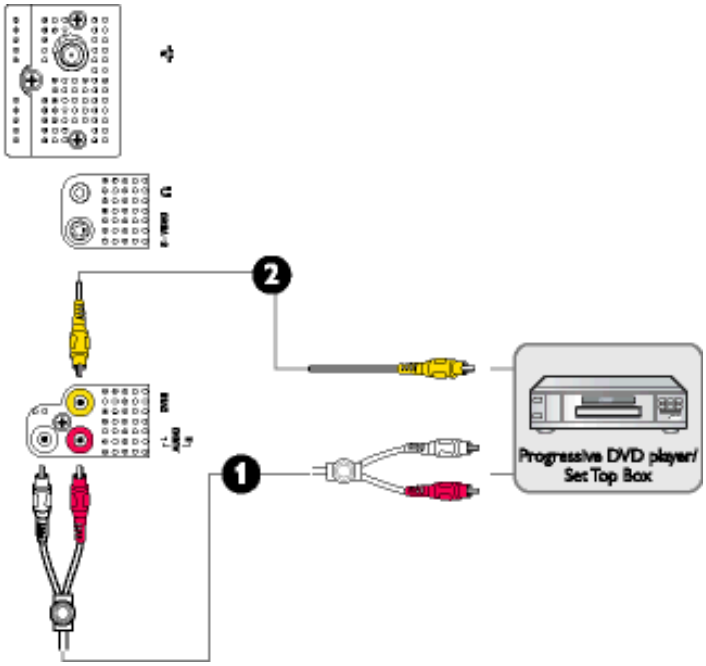
Progressive video and HDTV connections for digital high-definition picture





Connecting to Your PC, TV Antenna, DVD/VCR etc.





Consumer Information Centers

Service Contacts

If problems remain after checking this manual, please contact your place of purchase or contact:

Australian Service Contacts

Visit the Mitsubishi Electric Australia web site at **www.mitsubishielectric.com.au** for details of your nearest Mitsubishi Electric Authorised Service Centre or contact the Service Department for your state:

New South Wales and Australian Capital Territory
348 Victoria Road
Rydalmere, NSW, 2116
Telephone: 1300 651 808
Fax: (02) 9684-7684

Queensland
12 / 469 Nudgee Road
Hendra, QLD, 4011
(Airlink Business Park)
Telephone: (07) 3623-2000
Fax: (07) 3630-1888

South Australia and Northern Territory
77 Port Road
Hindmarsh, SA, 5007
Telephone: (08) 8340-0444
Fax: (08) 8340-0555

Victoria and Tasmania
4 / 303 Burwood Hwy
East Burwood, VIC, 3151
Telephone: (03) 9262-9899
Fax: (03) 9262-9850

Western Australia
5 / 329 Collier Road
Bassendean, WA, 6054
Telephone: (08) 9377-3411
Fax: (08) 9377-3499